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LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interests of Lake Carriers, and improve the character of the service rendered to the public.

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LAKE LEVELS BEING INVESTIGATED—DATA LACKING TO EXPRESS OPINIONS.

MILWAUKEE, WIS., Sept. 9, 1899.

THE MARINE RECORD:

I beg to acknowledge receipt of your letter of September 1, 1899, asking for an expression of my views upon the subject of lake levels, and in reply I would say that at this time I have not the data at hand to arrive at an expression of opinion upon the subject.

The question of lake levels is being duly investigated by officers of the Corps of Engineers, U. S. Army, on duty in connection with the improvement of navigation channels on the Great Lakes, and the results of these investigations will undoubtedly be most reliable and of great value to all the interests concerned.

Very respectfully,

J. G. WARREN,
Captain, Corps of Engineers.

TO BUILD SMALLER VESSELS IF THE LAKES ARE TAPPED—DAM THE OUTLETS—BOTH GOVERNMENTS INTERESTED.

CHICAGO, Sept. 12, 1899.

THE MARINE RECORD:

The Great Lakes have been tapped for the purpose of maintaining canals and water powers to such an extent as to seriously affect the water level of the lakes and connecting waters; unless some measures are taken to remedy this, there will be a reduction of water in the navigable channels which will injuriously affect the carrying capacity of the vessels navigating the Great Lakes. At present, competition is so fierce that only the largest vessels can insure a fair income upon the capital invested. The United States Government has spent millions of dollars in deepening the channels, waterways and harbors of the Great Lakes so as to increase the carrying capacity of the lake vessels. If by tapping the lakes, the lake level is to be reduced, this amount of money has been entirely wasted and the vessels which have been constructed with a view of utilizing deeper waterways, will be found to be too large and cumbersome, and the extra capital invested in making them so, has been a further waste of money.

It seems to me that it is high time for those interested in lake navigation to call the attention of the Governments of the United States and Canada to the fact, with a view of checking a further tapping of the lakes or of devising ways and means for maintaining the lake levels, so that the pro-

posed twenty-foot channel depth of water shall not be lessened.

For a number of years, I have believed that a remedy for all the difficulties which arise out of the lowering of a lake level, either through natural or artificial causes, could be found in the erection of dams in the Niagara, St. Clair, and St. Marys rivers. The erection of these dams might necessitate the building of a lock at Port Huron; none would be necessary at the Niagara river, because the dam could be erected on this river below the point of navigability. To use an apt phrase, "this method is better than dredging, because it would raise the top, rather than lower the bottom," only to have the top follow, and could be so arranged and controlled as to regulate the lake level no matter how affected. I am heartily in favor of the suggestion offered by Mr. Firth, the president of the Lake Carriers' Association, advocating the appointment of an International Commission of Engineers, whose duty it should be to investigate the subject and recommend some plan by which the lowering of the lake levels could be prevented.

C. E. KREMER.

NAVY YARD APPRENTICES.

Acting-Secretary Allen has issued an order making important changes in the navy yard apprentice system. Heretofore there has been no rule for the appointment and education of the apprentices. Now commandants at navy yards are instructed to receive applications from likely candidates, hold examinations and make up lists of eligibles, from which appointments will be made.

The examinations will not be severe, except physically, the requirements being the ability to read and write and knowledge of arithmetic up to decimals. Candidates must be between the ages of 15 and 17 years. Once appointed, the boys will be thoroughly instructed in their trades and examined from time to time for promotion. It is hoped in this way to cure the ills of the present apprentice system.

TRAFFIC THROUGH THE ST. MARY'S FALLS CANALS.

STATISTICAL REPORT OF LAKE COMMERCE THROUGH CANALS AT SAULT STE. MARIE, MICHIGAN AND ONTARIO, FOR THE MONTH OF AUGUST, 1899.

EAST BOUND.			
ITEMS.	U. S. Canal.	Canadian Canal.	Total.
Copper, net tons.....	17,203	1,313	18,516
Grain, bushels.....	1,172,204	216,300	1,388,504
Building stone, net tons.....	5,123		5,723
Flour, barrels.....	848,760	284,489	1,133,249
Iron ore, net tons.....	2,207,762	380,083	2,587,845
Iron, pig, net tons.....	2,257	350	2,607
Lumber, M. ft. B. M.....	163,285	4,252	167,537
Silver ore, net tons.....			
Wheat, bushels.....	2,546,672	1,202,664	3,749,336
Unclassified freight, net tons.....	13,143	2,597	15,740
Passengers, number.....	5,425	2,712	8,137

WEST BOUND.			
ITEMS.	U. S. Canal.	Canadian Canal.	Total.
Coal (hard), net tons.....	110,586	4,594	115,180
Coal (soft), net tons.....	447,178	130,753	583,931
Flour, barrels.....		1,350	1,350
Grain, bushels.....		12,000	12,000
Manufactured iron, net tons.....	40,026	1,390	41,416
Salt, barrels.....	28,253	3,260	31,513
Unclassified freight, net tons.....	50,068	3,938	54,006
Passengers, number.....	5,639	2,368	8,007

East bound freight, net tons..... 3,184,427
West bound freight, net tons..... 800,175

Total..... 3,984,602
Total craft through United States canal..... 2,612
Total craft through Canadian canal..... 645
Total registered tonnage through U. S. canal..... 2,598,740
Total registered tonnage through Canadian canal..... 508,372
3,407,112

THE DRAINAGE CANAL.

Now the Chicago big ditch, drainage canal, or navigable sewer, is threatened from a new direction and the drainage trustees are represented as feeling considerable uneasiness about it.

The Illinois and Michigan canal, that runs part of the way near the line of the big ditch, obtains its water from the Chicago river, the supply being pumped into the canal at the Bridgeport pumping station.

When the canal was rebuilt and its banks raised some years ago the city erected the Bridgeport pumping station and signed a contract with the state, agreeing to supply the canal with water perpetually. It has been understood all along that the moment water is turned into the drainage canal the city will shut down the Bridgeport pumps. This will leave the Illinois and Michigan canal without water and render useless the larger power plants at Joliet.

The Illinois and Michigan canal commissioners are preparing to apply to the United States courts at Chicago to enjoin the opening of the drainage canal until arrangements have been made to supply the old canal with water after the new channel is opened. Both the city and the drainage board are to be made defendants.

If this plan fails the canal commissioners will take their case before Congress and unite with St. Louis and other interests that are preparing to oppose the diversion of the water of Lake Michigan into the channel that will discharge it into the Mississippi instead of into the St. Lawrence river. The plea of the Illinois and Michigan canal people in that case will be that the opening of the drainage channel will destroy the old canal as a navigable stream.

Taken altogether, the outlook for Chicago's big ditch enterprise is not as roseate as it seemed some time ago. The \$32,000,000 spent on the ditch has not brought the necessary water as yet.

NAVAL CONSTRUCTION.

Admiral Hichborn's periodical report of progress in the construction of naval vessels shows that on the first of the present month there were 47 naval craft on the list, and with the exception of three torpedo-boats, every one of these vessels is actually advanced beyond the laying of keels. The eight big battleships stand in this order of progress:

Kearsarge, at Newport News, 95 per cent.; Kentucky, same place, 92 per cent.; Illinois, same place, 70 per cent.; Alabama, at Cramps, 90 per cent.; Wisconsin at Union Iron Works, 77 per cent.; Maine, at Cramps, 12 per cent.; Missouri, at Newport News, 1 per cent., and Ohio at Union Iron Works, 6 per cent. The four monitors range from 2 to 22 per cent. advanced towards completion. The sheathed cruiser Albany, purchased from the Armstrongs, in England, is recorded at 85 per cent. Of the torpedo-boat destroyers, the Lawrence, building by the Fore River Engine Co., stands nearest completion, at 48 per cent., while the Bath Iron Works lead in the torpedo-boat class, with the Dahlgren, at 98 per cent. The submarine boat Plunger stands at 85 per cent., failing to show any advancement recently.

DURING the three months from April 1 to June 30, 7,758 vessels measuring altogether 855,817 registered tons net, used the North Sea and Baltic Canal, against 7,350 ships and 767,802 tons in the corresponding quarter of last year; and the dues collected amounted to 428,981 marks, against 379,139 marks. The figures for the month of June are: 2,969 vessels and 322,152 tons, against 2,721 vessels and 287,057 tons; and 163,229 marks, against 142,269 marks in June, 1898.



CHICAGO.

Special Correspondence to The Marine Record.

The old excursion steamer Chief Justice Waite was sold by E. W. Powers to John F. May, for \$3,000.

Rasmus Thorsen, manager of the Manistee shipyard, was killed on Monday night by falling onto a pile of stones at his shipyard. Capt. Thorsen was well known among Lake Michigan traders.

The Truscott Boat Mfg. Co., St Joseph, Mich., was burned out on Saturday night; loss \$60,000, insurance \$15,000. About 250 men were employed building boats, launches, yachts, etc. The plant will be rebuilt at once.

Citizens of South Chicago are very much opposed to the new steam foghorn at the mouth of the Calumet river. It is claimed that it disturbs the slumbers of residents as far north as Thirty-ninth street. No organized movement has yet been made for the suppression of the noise.

James A. Dumont, Supervising Inspector-General of Steamboats, has started an inquiry to see if the laws concerning lifeboats and fire appliances on passenger steamers plying out of lake ports are being observed. He will visit Chicago, Cleveland, Detroit and other lake ports on the tour of investigation.

Negotiations are being carried on through Elphicke & Co., for the purchase of the steamer M. M. Drake, owned by Candler Bros., of Detroit. The purchase price is said to be \$35,000 in cash, and James Corrigan, of Cleveland is said to be the purchaser. The papers have been drawn up, but the deal is not yet closed.

The Mauna Loa, the new steel steamer recently launched from the yards of the Chicago Ship Building Co. at South Chicago, will go on her maiden trip September 23. Her engines, boilers and machinery have been placed, and work is now progressing rapidly on her deck fittings. Her first trip will be to Lake Superior for ore.

The tug lines here are now in the hands of the Lakes Towing Co. Capt. St. Clair will manage the former Dunham Line, with R. J. (Bobby) Dunham as assistant secretary. The Escanaba Towing & Wrecking Co. has also been taken under the wing of the syndicate and its workings, goings and comings, entrusted to the towing trust.

It is said that the Northern Michigan line steamer City of Charlevoix has been offered to the Holland-Chicago line for \$50,000, and the latter company may buy her as she is said to suit its needs to a nicety. In the event that the sale is made the Northern Michigan Company proposes to let a contract for a duplicate of the magnificent passenger and freight steamer Illinois.

A gang of 100 men are building the new Flint & Pere Marquette elevator at the rate of about five feet per day. The structure now stands about 60 feet high, and the interior arrangement of the bins, etc., is being completed as the work goes along. The building is almost square, and will stand 150 feet high, which is 25 feet higher than the old elevator. Its storage capacity will be 150,000 bushels, or twice the capacity of the old elevator. Inside the building there will be two legs instead of one.

It is expected that the improvements at the yards of the Chicago Ship Building Co., at South Chicago, will be completed by October 15 and that the total cost will approximate \$100,000. Two acres have been added to the ground space by the removal of the railroad tracks east. New blacksmith, furnace and pattern shops have been built and an addition has been made to the machine shop, which will make it the largest on the Great Lakes. The dry dock and one slip have each been lengthened seventy-five feet.

Charters of vessel room for 300,000 bushels of corn were made on 'change here on Monday at 3½ cents per bushel to Buffalo. Corn shippers clearly understood that vessels could get cargoes out of Superior at rates better than they could offer, and there was, for this reason, little haggling done over the price. Vesselmen who had boats on hand were willing to meet the corn shippers half way, as they were in doubt how much of a jam would result at the Superior docks from the big procession of steamers headed in that direction.

Work on the new outer breakwater at South Chicago is progressing rapidly, and the contractors, Hausler & Lutz, assert that they will beat the Government time limit in completing the work, providing the Government funds are forthcoming. The first sections of the work are being built in cribs of 100 feet in length, 24 feet wide, and 20 feet deep. As the breakwater extends into deeper water, the depth of the sections will be increased. There are 4,300 feet all told, of which 3,300 feet extends out east, north, east of the north pier of the Illinois Steel Co., and a disconnected section 1,000 feet in length will parallel the shore line. The latter section will ultimately be 2,000 to 3,000 feet long.

Marine engineers who are not under season engagements are after a raise in wages. The freights are high, boats are kept moving lively and they find that there is more work to do; besides, all hands are entitled to a share of the general prosperity. The engineers that I have spoken to are very earnest on the subject, but I have not canvassed the views of individual owners. It is quite certain, though, that a few dollars a month in engineers' wages will not be permitted to curtail the brisk sort of carrying during the balance of the season.

The Flint & Pere Marquette fleet of steamers have enjoyed an uninterrupted season of navigation this year, and now they are to be put in shape for the winter traffic. The two freighters, Nos. 2 and 5 will need repairs most. Entire new boilers are to be put in the No. 5 and costly repairs made to No. 2's boilers. No. 2 also stands somewhat in need of rebuilding, the frames being considered unsafe to withstand such a squeeze in the ice as she received last winter. It is expected that with the new elevator and this fleet of boats in working order, an immense quantity of freight and grain will be moved east via Ludington this winter.

Repair work on the steamer German, chartered by the Canada-Atlantic line, has been carried out in a very expeditious way at the yards of the Chicago Ship Building Co., and she will be out of dock this week in as good a condition as she was before she stranded on rocky bottom and received such heavy damage. Time was, when it was thought Cleveland was the only port where large repairs on steel hulls could be made satisfactorily as regards time and workmanship, but we have now to say that Chicago can discount any port on the lakes in building, drydocking and making heavy repairs. Plenty of material for construction is coming this way too, while every other yard is grumbling at not getting steel.

Recent marine transfers recorded at Grand Haven, Mich., custom-house are as follows: Schooner Wanderer sold by Alfred S. Bailey, of Benton Harbor, to Thurston Bannister, of Frankfort, consideration \$400; one-eighth interest in the steamer O. M. Field, Nyack and Naomi, sold by Edward J. Humphrey to Edward G. Crosby et al. for \$1 and other considerations; schooner Jessie Winter, one-half interest, sold by John Sather, of Muskegon, to Martin Michaelson, of the same place, consideration \$300; steamer Cico, sold by Frank Left, of St. James, to Thomas Friant, of Thompson, Mich., consideration \$2,200; tug George Stickney, one-third interest, sold by Tys Walsma et al. to John Walsma, consideration \$600.

If there is anything Chicagoans like it is advertising of the proper sort, and we are open to confess that Sault Ste. Marie has had all that she's entitled to this week and last. A personal canvass of all the exchange editors develops the report that Sault Ste. Marie, and incidentally, the "Soo" river, has been mentioned 94,735 times in the literature of the country during the past ten days. People that never even heard of the trickling stream would now make "Soo" river pilots, so well has the bends, curves, courses, ranges, depths, etc., been described and illustrated. The "Soo" ought to grant a good sized bonus to the Houghton and then throw their hooks out to catch another sticker at as early a date as possible, and before all the excitement quite dies out.

The trustees of the Sanitary District of Chicago recently opened bids for the use of water power from the Chicago drainage canal at Lockport, Ill. Mr. Clarence Buckingham offered \$5 per horse-power per year for a 50-year lease, with a provision for a sinking fund of \$2.50 per horse-power per year to be set aside for reimbursing the lessee for the cost of the plant at the end of the 50 years, when the property would pass to the ownership of the Sanitary District. The Economic Light & Power Co. offered to lease the water power for 75 or 99 years, at the option of the Sanitary District, and to pay therefor \$4 a year for each horse-power, the necessary dams, races and machinery to be built by the company and to belong at the end of the lease to the Sanitary District. The bid was made conditional on the District's granting permission to the company to string wires along the right of way of the canal and to construct power houses on District property. The company offered to furnish power to the city of Chicago in any desired quantity for \$25 a year per horse-power, delivered at the site of production, if contracted for within six months after signing the contract. By a vote of the board of trustees a resolution was passed binding the District not to lease the power for a period exceeding 10 years, which virtually rejects the bids above referred to.

BUFFALO.

Special Correspondence to The Marine Record.

It is rumored that the Lehigh Valley Transportation Co. intends to construct two large steel steamers of the latest type.

The little steamer Nellie was sold on a libel for tow bills by the marshal this week. She was purchased by Thomas Ryan for \$850.

The wooden steamers Fred Mercur and H. E. Packer have been sold by the Lehigh Valley Transportation Co. to Frank B. Baird, president of the Union Iron Works Co., Buffalo.

The statement that the steamer Aztec and consort Miztec had been purchased by Capt. J. P. Nagle for parties in Toledo, was a surprise to many marine men. The purchase price, as given out, is \$65,000 for the two boats. The Aztec is 836 gross tons, and the Miztec 777 gross tons, built in 1890 at Marine City. J. J. Boland arranged the transfer here.

The Quebec, Hamilton & Ft. William Steamship Co. has decided to begin operations at once, so that it will be able

to enter the lake carrying trade next spring. Contracts will be let in England for two 3,000-ton steel ships. Canadian firms were asked to tender for the contracts, but they could not guarantee to have the boats finished in the spring.

The Hamburg canal is soon to be made a model canal, with the nuisances abated. The prism of the canal is to be drained, filled in, and retaining walls built. An important problem is what to do with the mud when it is taken out. The health commissioners have forbidden it to be dumped into the river or lake. The city authorities are having it analyzed with a view to selling it as fertilizer.

This is just the exact time to inspect the small passenger and excursion steamers on the lakes. "I don't think," said a marine man to me this week, "fully half of them have just been taken off their route, in fact, some of the biggest lines closed down a part of their passenger traffic only this week. I, of course, like to see an inspection that inspects, and this should be done in the height of the season, not when boats are through and laid up. You won't see another excursion permit issued nor asked for this season, and where the inspection comes in I hardly know."

The Steamboat Inspection Service is right after Canadian steamers and intends charging inspection and traveling fees. The Supervising Inspector General in his report to the Secretary of the Treasury says: "Though the United States has never collected fees for the inspection of foreign passenger steam vessels, yet the Dominion of Canada, notwithstanding the courtesy it has received from the United States in the matter of non-collection of fees for inspection of its steamers visiting ports in the United States, and the further courtesy of sending United States inspectors into the Dominion of Canada to inspect Canadian steam vessels, and thus prevent the delay that would be caused to such vessels if compelled to be inspected in American ports, where their stay is often but a few minutes—sufficiently long only to land and take on passengers—charge heavy fees for the inspection of American vessels visiting its ports under the same conditions as Canadian vessels visiting American ports."

It's an awful nice thing, as the girls say, for a man to have his employees think that he's about the best fellow on earth. The tugboat men seem to so regard Capt. Maytham (I know a good many so regarded his father before him), however, Capt. Edward C., found a very handsome leather covered easy chair in his office on Tuesday, tagged for the steamer Waldo. He brought the end of his back to an anchor and wondered for a moment at the extravagance of the dollar grabber holding the Waldo's finances in charge. Shortly after, a crowd of men from the tug boats, headed by Capt. Doyle, walked in. Capt. Maytham was slightly taken aback at their appearance. Capt. Doyle told him, in a few well-chosen words to make himself easy, and, as he had an eye on the chair he might heave-to in it, as they had concluded that there was nothing half so easy as an easy, easy-chair. Flabbergasted is the easiest way to describe Capt. Maytham's feelings. He let go his ground tackle while the men got under-way for the dock and left him rocking.

DETROIT.

Special Correspondence to The Marine Record.

The second stop here of the fleet that was blockaded at the "Soo" was not as bad as the detention they are now experiencing at unloading ports.

The speedy little steamer Unique is at work at last. She now deserves the most successful career of anything afloat, as she has worked hard for it, so have her owners.

The steamer Republic, loaded with ore, grounded at the lower end of the St. Clair canal on Tuesday. She is not directly in the way of passing boats, but was found more or less of an obstruction.

Capt. Martin Swain of the wrecking steamer Favorite has quite a difficult job in releasing the steamer Buell, sunk while coming through the Canadian channel, east of St. Joseph Island, so as to avoid the grounded steamer Houghton, her wheat cargo is all damaged and she has heavy bottom damage.

Plans for the extensive improvement of the Wyandotte yard of the Detroit Ship Building Co. are under consideration and when completed the yard will have a capacity of building two 500-foot vessels at the same time. The construction of a 550-foot dry dock at one of the Detroit Ship Building Co.'s yards is contemplated.

The body of Isaac G. Sowter was brought from Cleveland to this city for burial last week. Mr. Sowter was a draftsman for S. F. Hodge & Co for about 20 years, was employed in the same capacity with the Detroit Dry Dock Co. for 6 years, and later went to Cleveland with the Cleveland Ship Building Co. The body was interred with Masonic honors.

With his usual good luck Capt. James Davidson escaped having any of his fleet, with one exception, tied up through the "Soo" river blockade. Upwards of twenty large sized wooden steamers and consorts waltzed along from port to port with good paying freights while a majority of other large fleets were lying idle waiting for the Houghton to be moved out of the channel. Fortune sometimes favors the brave, and in this instance the captain must be considered the brave.

The schooner Wanderer was towed to Sarnia from Lake Huron, where she met with a somewhat strange accident. The Wanderer, while about ten miles above Sanilac, was struck by an unknown steamer and had her stern cut off as with a saw. The steamer never stopped after the collision, but made haste to get out of the way. The Wanderer was

left helpless, having lost her steering gear, and drifted about the lake until picked up by a downward bound steamer which towed her into the river.

Over 200 vessels in the down-bound fleet kept the river lively this week. The northwesterly weather sent the water at the Limekiln Crossing down to 17 feet 5 inches and it looked for awhile as if we wanted lock gates to back the water up a foot or two. There were some slight groundings, as well as a couple at the St. Clair canal. However, the river is now clear, and commerce is fast getting back to its usual gait. The marine mail delivery, also the small boats reporting passages, waded through an enormous lot of work without loss or accident.

Capt. Richard Freeman and Nelson Alguire were the only survivors of the foundered Canadian schooner Lisgar. They were picked up floating on some wreckage on Lake Huron after drifting from Saturday night until last Thursday without subsistence of any kind and exposed to the weather, their own convoy, or towing steamer seemed to promptly desert them, and while they had repeatedly sighted other vessels nothing passed near enough to pick them up. Wreckage from the Lisgar as well as the schooner Hunter Savidge is now floating around on Lake Huron. Loss of life occurred in both cases, the Savidge was thrown on her beam ends and the Lisgar foundered.

DULUTH-SUPERIOR.

Special Correspondence to The Marine Record.

The aggregate shipments of lumber by water last year from the Duluth-Superior harbor were about 333,000 feet and it is now known that the shipments this season will greatly exceed those of last year.

Charles Beach and Henry Ferguson, sailors on the schooner Charles Wall, fell from the masthead to the deck while the schooner was lying at Houghton, Monday. Beach died of his injuries a few hours later, but Ferguson will live.

The big drydock constructed for the Superior Ship Building Co. at West Superior, cannot be made ready for reception of vessels this season. The Barnett-Record Co. has temporarily taken off the crew of men which was working on the excavation, as the continued muddy weather has made it impracticable to continue.

Last Saturday, at Marquette, there was a most successful trial of a gas-propelled lifeboat. With a two horse-power engine, the boat, a large one, went seven miles an hour, and rolling it over did not in the least affect the motive force, as it is encased in an air-tight chamber. The self-righting properties of the lifeboat were also maintained.

The Duluth News Tribune says: "One of the tugmen who witnessed the collision between the schooner Stewart and the steamer Peerless on the upper bay last week, says that immediately after the collision a woman was observed climbing swiftly up to the pilot house, where on her arrival she threw her arms about the neck of Captain Page. Of course she did not know the boat was to sink in shallow water and that she would not get her feet wet if she remained on deck. The captain knew, however, and it is presumed that he told her to be calm."

The steamer Penobscot will be out of dry dock by Thursday and the Peerless will take her place. By the way, the successful old Cleveland built wooden passenger steamer Peerless was built in Cleveland 27 years ago. She was considered a large powerful boat then, of 1200 tons. Capt. Geo. P. McKay, manager of the Hanna fleet of boats had charge of her and the position was considered one of the best on the lakes. From all that we hear and read up here, Capt. McKay is still in the foreground and vigorous, but his old time coach has certainly seen her best days and now comes in the winter of her discontent, for when an old wooden hull is once opened up there is no telling where repairs will have to stop. Her owners, the L. M. & L. S. T. Co., Leopold, Austrian & Co., Chicago, kept the vessel up well and she was excellently well built, but age always tells, and, in this case as in all others.

Mr. E. N. Saunders, of St. Paul, president of the Northwestern Coal Co., in discussing the coal situation said: "Coal rates are exactly 150 per cent. higher now than at this time a year ago. Last year they were 20 cents and now they are 50 cents. Last year there were received at the head of the lakes about 2,500,000 tons of coal, and it all came via Duluth and was distributed in the tributary country. But the high rates for lake transportation are going to send about 25 per cent. of the coal required in this territory in by rail direct from the coal fields. Two and a half million tons of coal will supply the needs of this territory this year, and from present indications a quarter of it will come in all rail. Of course we do not imagine that this condition will be permanent. The extraordinary demand for iron ore is setting the pace for lake freights this year. Under present circumstances we cannot bring coal via Duluth as cheap as all rail. Already coal is being shipped all rail to within 200 miles of Duluth."

"Would a doctor's report come under the head of news of the weak?"

"Do you believe Dreyfus is guilty?"

"Of course I do," answered the French army officer, fiercely.

"Guilty of what?"

"Guilty of trying to prove his innocence, of course. Anybody ought to be able to see that!"—Washington Star.

CLEVELAND.

Special Correspondence to The Marine Record.

The Houghton is not the longest vessel on the lakes, the Morse has a foot more keel.

The day trips to Put-in-Bay and Toledo were discontinued on Tuesday. The night trip leaving here at ten o'clock is still being run.

The rush at discharging ports is keeping vessels back a day or two at every dock. This expense can also be figured in through the grounding of the Houghton.

The steel cargo steamer H. C. Frick, 4,713 gross, 3,159 net tons, Cleveland, O., was awarded an official number, by the Bureau of Navigation, Treasury Department, during the week ending September 9.

Messrs. Corrigan, McKinney & Co., ore shippers, have bought the steamer M. M. Drake from Candler Bros., of Detroit. The consideration named is \$35,000. This makes eleven wooden vessels that the firm has purchased this season.

With the blockade raised at the "Soo" all hands are beginning to spruce up again for another lively rush of business. From the vesselowner to the broker, shipper, consignee and even the longshoremen found the idle spell growing irksome.

Capt. D. A. McLachlan, Detroit, for about 40 years in the employ of the D. & C. line, visited this port on Wednesday. The "big captain" looks, feels and wears well. Mr. T. F. Newman was an especial protege of Capt. McLachlan's in the days gone by.

The \$500 penalty on the Stimson for carrying passengers has been remitted to \$20 by the Secretary of the Treasury. This is the firm but gentle way of making masters remember that there are rules and regulations made especially for their guidance under all circumstances.

The new steel cargo steamer H. C. Frick, Capt. C. B. Galton, left for Duluth Wednesday night, where she will load a cargo of ore for an Ohio port at \$2 a ton. She will carry about 6,200 tons, and it is figured that she will be able to make at least eight trips during the balance of the season.

The Douglass Houghton is insured in companies represented by Johnson & Higgins, of New York, attorneys representing British underwriters. The work of releasing and repairing the steamer and her consort Fritz will cost the underwriters a round sum of money. The Houghton will dry dock at Lorain, O.

There is a semblance of competition in the towing business yet at this port. Capt. Dahlke has always been an opposer and he is as lively as a bunch of fleas. The men in the syndicate tugs wishes he were in, well, at some other port. They say it is hard to have to be kept keyed up all the time but Dahlke stands watching.

O. C. Pinney, Esq., attorney-at-law and proctor in admiralty, says that any waste of water taken from the lakes should give adequate commercial returns. Mr. Pinney believes in looking at the subject of lake levels from a broad national standpoint, and as it may affect the future, rather than from the conveniences and necessities of the day.

Capt. Murch is certain that the mean lake level has lowered during the past half century. Harbors, rivers and channels have been deepened by improvements, but rocks that were awash in Lake Superior a few decades ago are now high and dry. The captain is further of the opinion that every possible feature ought to be enlisted towards regulating and maintaining lake levels.

The new Minnesota liner Malietoa, just completed at the Lorain yards of the American Ship Building Co., is now nearly ready for her first cargo, and it is expected that she will be turned over to her owners by the close of this week. There is all the work ahead of this new 6,000-ton craft that she can do for the balance of the season and a handsome profit to be earned each day that she turns her wheel.

Col. J. A. Smith, Corps of Engineers, U. S. A., points out that lake levels are usually lower in the fall of the year and asks vesselmen to take this fact into consideration when loading. Boats are being built larger each year and dredging is being carried on fairly brisk at all ports, but steel structures are riveted together a trifle faster than river and harbor bottoms can be dredged out to accommodate these floating warehouses of mineral and vegetable products.

The present harbor-master, Capt. Dyer, has succeeded in doing what none of his predecessors could bring about, viz., the purchase of a river patrol boat by the city. The little craft is a naphtha launch, and was purchased in Detroit for \$489. Besides patrol purposes she will be used for towing snags and other debris out of the river. The investment is voted as a good, sensible one, in the matter of saving municipal funds, at the same time it is a great loss to the tug boats which used to get a quite a monthly rake off for towing snags out of the river.

The views of Capt. Thos. Wilson, as again recently mentioned in the MARINE RECORD, will now meet with special attention. All interests are at one in endorsing the captain's system of having duplicate channels in the connecting waters of the lakes and more especially in the "Soo" river, St. Clair canal and at the Lime-Kiln Crossing. Realizing the vast proportions that lake commerce was certain to attain Capt. Wilson has always maintained that separate up and down bound channels would do more for the safety of lake transportation than any other feature that could be advanced.

It's always been a query to know what becomes of the old sailor, we once had the war to kill them off, but that's quite a dog watch ago, and there must have been some more made since. One old stand by, that hundreds at least will be pleased to hear of, is "Barney" Murphy, dock master for Messrs. Farasey & Marron, steamship agents, wharfingers and forwarders, River street. Bernard Murphy, after handling more package freight than the chief mates of boats are now seldom called upon even to see, "swallowed the anchor" about fifteen years ago, and took charge of the dock, freight-sheds, etc., where he still rules; he is prompt and exact with his work, looks for the same conduct from those working under him, and is well thought of by his employers, the employes have no kick coming against "Barney" at any stage of the hustle either, for his early training taught him how to handle men as well as freight, and he is as reliable to-day as he was a dozen years ago.

The Houghton nearly made a hole in the water on her passage down from the "Soo" river, after temporary repairs had been made. Meeting with a little sea, Capt. Byrnes, dubious about the repair work, found the bolts giving way and breaking so that he had barely time to reach smooth water and strengthen the patch. It would have been almost a crime to let the steamer sink in tall water on Lake Huron after she had just got out of her trouble in the "Soo" river. Whoever was responsible for allowing so valuable a vessel to proceed with inadequate temporary repairs ought to be brought up with a round turn. Underwriters can insure, and send their agents anywhere they may please, but that doesn't repay an owner for the loss of his vessel, especially in these times of good freights on the lakes. The owner must be represented on these sort of cases, or be on the ground himself, otherwise, they might as well place his bank account for strangers to handle.

At a special meeting of the marine engineers held at their headquarters at No. 122 Water street on Tuesday night, it was decided to stand by George B. Uhler, president Marine Engineers' Beneficial Association, and the national advisory board in any action they may take in the way of a demand for an increase in wages. An officer of the association said that similar action had been taken at all the ports visited by President Uhler. The meeting was attended by about fifty members. One of the members said that a request for a better rate of wages was sent to the secretary of the Lake Carriers' Association early in August, but no attention was paid to it, although a new schedule increasing the wages was adopted August 15. The engineers say they don't want to strike, but they do want to get a fair share of the prevailing prosperity. The local members of the Lake Carriers' Association say that their engineers have made no complaint about the wages they are receiving. They say that a large number of the chief engineers are engaged for the season and for that reason no change was made in their wages when the last schedule was adopted. It was also learned that the wages of some of the second engineers on the big steamers were marked up during the past week.

FLOTSAM, JETSAM AND LAGAN.

The Infant Prodigy—What shall I play for you to-night, Uncle George?

Uncle George—Oh, go and play dead for a while, that's a good girl.

The production of aluminum has increased eighty times in the past ten years, and now there is some talk of the British building a large ship of that metal. To prevent galvanic action in salt water the surface is to be coated with paint.

The largest vessel that has passed through the Suez canal is the Elder Dempster liner Monarch, of 7,296 tons gross register, drawing close on the maximum draught of 25 feet 7 inches. The tolls are about \$1.72 per ton, or in the English 7 s. 2 d.

What is a constructive total loss, is a problem more easily asked than answered. The English law is, that it is when the expenses of repairing a damaged vessel exceed the value when repaired, each condition being more or less an unknown quantity or at best a matter of conflicting opinion.

A movement is on foot to induce the government to discontinue the use of such old remnants of the American navy of a bygone age as the Franklin, the Wabash, the Independence, the Constellation and the Vermont as receiving ships, and to erect barracks for the purpose to which these venerable hulls of frigates and line of battleships are now devoted.

A Roman galley, built more than 2,000 years ago, said to have been propelled by three tiers of oars, was 110 feet long and 11 feet broad. After the fall of the Roman Empire little progress appears to have been made in the building of ships for many years. Venice was, however, the chief center for the art of shipbuilding during the early centuries of the Christian Era, and it is on record that in the tenth century galleys of from 1,200 to 2,000 tons capacity were to be found in the Mediterranean sea.

The new graving dock opened recently at the Union Docks, Limehouse, London, is peculiarly interesting from the fact that in order to construct it the buried hulk of an old East Indiaman, called the Canton, had to be excavated and cleared away. In 1828, when Mr. Henry Fletcher was making arrangements for the building of the docks on their present site, he purchased the old East Indiaman, sunk her, erected gates at her stern, and made a unique dry dock, which, until 1898, formed the third or lower dry dock.

CARBONATED PORTLAND CEMENT.

NIAGARA FALLS, Sept. 7, 1899.

Special to the Marine Record:

The fifteenth annual convention of the National Association of German-American Technologists, was held here from 2nd to 6th inst., there was a large attendance. The following paper was read on Tuesday, by Mr. Theodore Zwermann.

An invention in which I have taken great interest, owing to my former close connection with Portland cement industry in Germany, has recently been patented by Mr. H. J. Livingston, of Baltimore, Md., who is a competent authority on all matters connected with cement manufacture. I have carefully investigated this new process, and find it is chemically unassailable, and I submit to you also the results of over two years' experiments by the inventor. I venture to think a new era in the manipulating, if not in the manufacture, of Portland and other hydraulic cements has begun, and therefore consider the subject is well worthy of your attention. To those who would pursue it further, I would recommend for their perusal a series of articles on Portland cements and associated industries, which have appeared during the last few months in the MARINE RECORD, of Cleveland, O., and are of a very instructive nature.

Assuming that all other ingredients are in proper proportion, we know that the higher cement is kept in CaO the stronger it is, but at the same time it is more expensive to make, and more treacherous. Neutralising the CaO in cement has therefore been always sought for, and the benefits of that result fully explained by such authorities as Le Chatelier & Michaelis. But while all agree on its advantages, no cheap and efficient method of realizing these had been discovered until Mr. Livingston's investigation disclosed the fact that the union of carbon and calcium oxide, under ordinary conditions impossible, could be effected by the introduction of a small, but sharply defined quantity of hydrocarbon, say about one per cent. of the added lime hydrate.

I have the honor of submitting to you a sample of German cement, and for comparison a sample of the same with 80% of dry lime hydrate added. Both were kept for 9 months in frequently changed water, and then exposed to the sun and open air till now (about 21 months in all). It will be observed that the carbonated Portland has not cracks, and though overloaded with lime, is almost as hard as the other, while the pure or original Portland cracked slightly after 6 months exposure to the air. Carbonated Portland with even 125% added hydrate behaved like that with the 80%, though of course slower setting and not quite so hard, but it demonstrated that a very high percentage of lime can now safely be used.

Further experiments showed that the best results were obtained with from 15 to 25% of added hydrate. If, as the inventor proposes, these figures be adopted, but preferring, as my own experience leads me to endorse, the addition of 25% hydrate, then a cement is obtained which, though slow setting, will, if used neatly, equal or overtake the Portland on which it is based in about 6 weeks. But its advantages are more apparent when used as a mortar, 1 to 3 sand, for it draws ahead of the Portland mortar within 3 weeks, and shows an advance of strength which may be estimated as from 25% upwards.

The benefits attributable to the employment of carbonated over ordinary Portland are:

Economy, cheaper to make.

Stronger and much less liable to crack.

More adhesive.

More plastic. Workmen can trowel it readily.

No gypsum required, a great advantage when we consider that some Portlands have already too much S without adding more.

Good blue color, and slow setting.

Further, the advantages of this discovery when applied in sea water, sewers, etc., cannot be over-estimated, there is practically no free lime for acid to attack.

I might also suggest that makers could send their clinker at gravel or sand rates to suitable distributing points where good lime is cheap and grind and mix all the materials there. In many cases there could be an immense saving in railway haulage.

By preference, two inexpensive materials, coke and sugar, are used. What the chemical action is I am not exactly prepared to say, but evidently a sub carbonic acid is formed as soon as the mixing water is added, and it rapidly develops into carbonic acid.

I will say nothing about the treatment of slag and natural cements by this process. It is, of course, equally applicable to them, and will be of greater assistance, but the economic conditions have to be very carefully considered.

In conclusion, I have only to add that I find no trace of adulteration in this really scientific process. The extra lime is burnt in a separate kiln, instead of being burnt separately in the clinker as usual, and the carbons are added at once, instead of coming in by degrees from various sources, and therefore secure their proper positions in the mass before these can be filled by undesirable intruders. It seems to me, therefore, that adulteration is more completely avoided, and the dangerous ally—gypsum—dispensed with.

Lord Clyde, one day after dinner, asked a chaplain to one of the regiments in India for a toast, who, after considering some time, at length exclaimed with great simplicity. "Alas! and alack-a-day! What can I give?" "Nothing better," replied his lordship. "Come, gentlemen, we'll give a bumper to the parson's toast. 'A lass and a lac a day.' A lac means a hundred thousand rupees."

NOTICE TO MARINERS.

LIGHT-HOUSE ESTABLISHMENT,
OFFICE OF THE LIGHT-HOUSE INSPECTOR, 9TH DIST.,
CHICAGO, Ill., Sept. 8, 1899.

Notice is hereby given that on or about Sept. 15th, 1899, a red can buoy will be established on the northwesterly end of the shoal at the entrance to the harbor of St. Joseph, Michigan. On the same date the black can buoy marking the southwesterly end of the shoal at the entrance to the harbor of St. Joseph, Michigan, and the red spar buoy marking the northwestern point of the shoal on the southern side of the entrance to the harbor of St. Joseph, Michigan, will be discontinued.

LIGHT-HOUSE ESTABLISHMENT,
OFFICE OF THE LIGHT-HOUSE INSPECTOR, 9TH DIST.,
CHICAGO, ILL., Sept. 11, 1899.

MANITOWOC SHOAL BUOY.

Notice is hereby given that the black spar buoy marking the northerly end of the shoal to the southward and eastward of the entrance to Manitowoc harbor, Wisconsin, reported adrift on September 8, 1899, was replaced on Sept. 11, 1899.

By order of the Light-House Board:

F. M. SYMONDS, Commander, U. S. N.,
Inspector 9th Light-House Dist.

LIGHT-HOUSE ESTABLISHMENT,
OFFICE OF THE LIGHT-HOUSE INSPECTOR, 10TH DISTRICT,
BUFFALO, N. Y., Sept. 11th, 1899.

Notice is given that Ballard Reef channel (middle) gas buoy No. 3, main channel, Detroit river, has been dragged out of position about 100 feet to the westward, the lens broken and the light put out, by some unknown vessel.

The buoy will be replaced and re-lighted as soon as possible.

By authority of the Light-House Board.

FRANKLIN HANFORD, Commander, U. S. N.,
Inspector 10th L. H. District.

DOMINION OF CANADA—ONTARIO.

RESUMPTION OF PERMANENT LIGHT, BATTLE ISLAND.—The revolving light shown from Battle Island, on the north shore of Lake Superior, which had been temporarily discontinued in consequence of an accident to the machinery, was again put in operation on the night of the 21st instant. It now shows as heretofore a revolving light alternately red and white every 1½ minutes.

F. GOURDEAU,
Deputy Minister of Marine and Fisheries.

Department of Marine and Fisheries, Ottawa, Canada, 25th August, 1899.

All bearings, unless otherwise noted, are magnetic and are given from seaward, miles are nautical miles, heights are above high water, and all depths are at mean low water.

Pilots, masters or others interested are earnestly requested to send information of dangers, changes in aids to navigation, notices of new shoals or channels, errors in publications, or any other facts affecting the navigation of Canadian waters to the Chief Engineer, Department of Marine and Fisheries, Ottawa, Canada.

FUTURE STEAM SPEED AT SEA.

As to the speed of the future, I remember reading an article on mechanical impossibilities written about twenty-five years ago. It was well written and possibly it was generally correct, but one operation, which was cited as impossible of accomplishment, was that of propelling a steamer at the rate of 25 miles an hour across the ocean. At that time the Atlantic had never been crossed by a screw steamer at so high a rate as 15 miles an hour, the Scotia being the fastest liner in those days, she having crossed the Atlantic at an average rate of 14 1-3 knots. Steaming across the ocean at the rate of 25 miles an hour might, therefore, well have been looked upon at that date as impossible, but, to-day there are steamers which have reached that speed, and there are others in course of construction which may probably exceed that rate across the Atlantic.

Although, roughly speaking, the power required to propel a steamer varies with the cube of the speed, yet, before a third of the next century expires, another increase of at least 50 per cent. in ocean speed may safely be prophesied. How this is to be accomplished, it would be too hazardous to attempt to surmise; but I may point out how I think it will not be done, and that is by carrying and handling five thousand tons of bunker coals in a hull drawing nearly 50 feet of water. The model of the ocean mail steamer of the next century will probably be that of a very much enlarged "destroyer" of great breadth and length and small draught of water forward.

Lighter and stronger materials will compose the structure, which may be moved by multiple propellers, possibly working in a tunnel, so that a number of wheels could be worked by separate shafts, actuated by rotary motors, as the size of screw shafts and engines even now under construction are perilously large; or the motive power may be produced by compressed air or gas. Then, the form of least resistance probably being discovered, the hull, broad and light in comparison with the augmented dimensions, will rise on top of the waves rather than pass through them. The rolling and pitching may be more severe than at present, but with improved cabins and a shortened voyage, the difference may not be noticed. The construction of a steamer of 65,000 tons will probably not trouble the constructors of the future nearly as much as did the building of the Great Eastern those of the past. There will be infinitely less labor, both mental and physical, than was required for the construction of a great ship in those days.—J. R. Oldham in Cassier's Magazine for September.

SHIPPING AND MARINE JUDICIAL DECISIONS.

(COLLABORATED SPECIALLY FOR THE MARINE RECORD).

Maritime Liens—Vessels Subject to—Dredge.—A dredge capable of being moved from place to place on navigable waters, and of the transportation of machinery and sand and gravel taken from the bottom of rivers, is a vessel, and subject to maritime liens. *McMaster et al. vs. One Dredge*, 95 Fed. Rep. (U. S.) 832.

Seamen—Release of Wages—Execution Under Constraint.—A release of wages earned by a seaman, executed while on board the vessel on a voyage, and imprisoned in irons, on his being released from imprisonment and discharged, will be presumed by the court of admiralty to have been given under constraint, and will not be given effect. *The Fred. E. Sander*, 95 Fed. Rep. (U. S.) 829.

Admiralty—Jurisdiction to Enforce Statutory Liens—Contracts Not Maritime.—A court of admiralty is without jurisdiction of a suit to enforce a lien unless it arises from a maritime contract, and a contract to build a vessel is not maritime, nor is it made so by a State statute giving a lien on the vessel for the labor done and materials furnished in its construction. *McMaster et al., vs. One Dredge*, 95 Fed. Rep. (U. S.) 832.

Shipping—Freight—Portion of Cargo Undelivered.—As a general principle, freight is payable only on so much of a cargo as is delivered, and there is an equitable presumption that such is the contract of the parties, to overcome which a contrary intent must be expressed with reasonable clearness and certainty. *Christie et al., vs. Davis Coal & Coke Co.*, 95 Fed. Rep. (U. S.) 837.

Contract for Conversion of a Scow into a Dredge.—A contract for converting a scow into a dredge, is one for the building of the dredge, and is not maritime; hence a court of admiralty is without jurisdiction of a suit to enforce a lien on the vessel, given the builder by statute. *McMaster et al. vs. One Dredge*, 95 Fed. Rep. (U. S.) 832.

Collision—Total Loss of Vessel—Damages—Charter Party.—Where a ship is a total loss, as the result of a collision, the measure of damages is her value, with interest, and compensation for loss of use is not recoverable in such case, as it is presumed to be covered by the restoration; and the fact that the vessel had entered upon the performance of a charter party does not change the rule. *The Hamilton*, 95 Fed. Rep. (U. S.) 844.

General Average Adjustment.—Where the charterer is, by the terms of the charter, required to pay the freight on goods lawfully jettisoned during the voyage, the consignee is entitled to allowance therefor in the general average adjustment, but is assessed only on the foreign value of the goods, less the freight, which is assessed to the vessel. *Christie et al., vs. Davis Coal & Coke Co.*, 95 Fed. Rep. (U. S.) 837.

Collision—Liability of Tug—Failure to Keep Lookout.—A tug, passing down the Delaware river at night with a barge in tow, lashed to her side, and projecting beyond her bow some 40 feet, which failed to keep a lookout on either the tug or tow, must be held in fault, and jointly liable for a collision in which the tow was sunk by another tug, though the collision was caused by the improper navigation of the latter; it not appearing but that it might have been avoided, had there been a proper lookout. *The Elk et al.* 95 Fed. Rep. (U. S.) 846.

Shipping—Delay in Fulfilling Charter—Demurrage.—The fact that the owner of a ship objected to the terms of a charter made by his agent, and attempted to have them changed through correspondence, before the vessel was sent to the charterer, where she did not arrive until after the cancellation date, but was then accepted and used by the charterer, is not alone sufficient to show that the owner was responsible for the delay, so as to render him liable to the charterer for damages caused thereby. *The Ekliptika*, 95 Fed. Rep. (U. S.) 836.

Charter of Vessel by Agent—Ratification by Principal.—A yacht was chartered for the use of the New York Sun newspaper in gathering news during the war with Spain. Two charters were made—one for two months, and one following for four months—and before the expiration of the latter the boat became stranded, and was lost. The charters were procured by the manager of the news department of the paper, who was designated therein as the hirer, but who signed the same "for the Sun Printing & Publishing Co." A guaranty was also given at the time of the execution of the last charter to secure the performance of the contract by the charterer, and purporting to bind the Sun company, which was signed by the same person, and in the same form. Held, that the two instruments must be regarded as having been executed by the same party, and as constituting one contract, and, the company having had the sole benefit of such contract, and having, in the usual course of its business, paid the premiums for certain insurance procured thereon during the term of the charter, it must be considered as having ratified the contract made in its behalf, whatever the original authority of the manager. *Moore vs. Sun Printing & Publishing Ass'n*, 95 Fed. Rep. (U. S.) 485.

MR. WHEELER'S VIEWS ON THE CHICAGO DRAINAGE CANAL—THE GENERAL EFFECT ON LAKE LEVELS—DETRIMENTAL TO THE SOUTH—REMEDIAL WORKS SUGGESTED.

SANDUSKY, Sept. 11, 1899.

THE MARINE RECORD.

I have been reading of late, with much interest, the controversy on the subject of "The Chicago Drainage Canal," and considering the past and the present, I am reminded some of the old adage of "locking the door after the horse was stolen."

Years ago, when the project was in embryo, I first read of this canal scheme. Understanding that the project, as then proposed, was only for the purpose of removing the sewage from the city southerly by the way of the Chicago creek, putting in dams at certain intervals, over which the sewage was to be pumped, until they could reach the summit, and then let it run down the river to the Mississippi. Being for sanitary purposes only, with no intent, as I understood it, of making a ship canal of it, and no one at the time intimated that one-tenth of 300,000 gallons per minute, hardly that much per hour would be required to keep the city sewers clean, yet it was thought by some that the volume that would of necessity be taken, would be so large that it would more or less interfere with lake navigation.

I was one who so thought, and was charged with being foolish to oppose it, not only on account of the draft it would make on the lake for the water it would take from the natural channel through the State, thereby reducing the volume, naturally growing less every year, that was required for navigating the lakes at points where the channels were shallow, where the excavation had been going on for years, and that seems to be drawing about all the attention at this time, when the Chicago ditch is a fixed fact.

There was another matter of great importance to be considered in connection with the construction of said sewer. It was the great detriment that it would be to the country, and the people in that portion of the State through which it would be constructed, by reason of the great open sewer, through which all the filth, garbage and putrid matter would be forced to flow, breeding sickness and death all along the vast region that it would traverse to the father of waters, polluting all the water courses theretofore supplying good water to the inhabitants, and water for stock, and large quantities of food fish, all of which would be lost and destroyed should it be constructed, tending to depopulate the garden of the prairie State, and make millions of her fairest acres worthless, making it a more undesirable place to live in than the everglades of Florida.

Letters were written to the late Senator Brice, and several members of Congress, representing congressional districts bordering along the lakes in Ohio, New York and Michigan, giving them some idea as to the great detriment it would be to the carrying business of the merchant marine on the Great Lakes, by taking so much water from its natural channels, should the Chicago project materialize; by lowering the water, and thus decreasing the volume where it was most needed, especially at the St. Clair Flats, and the lower portion of the Detroit river, as well as the harbors all along the lakes. Pointing out the great necessity that would follow for an increase of expenditure that would have to be met by the government in excavating at the shallow places along the main thoroughfares traversed by the merchant marine that abound upon our great inland seas, and the dredging out of such harbors as Cleveland, Sandusky and Toledo, and many others from the "Soo" to Buffalo, Lake Erie ports being naturally the greatest sufferers. But at the first it seemed a funny idea, and the people made it appear a very plausible right to send the filth of that great city to the south-land, and it mattered not to them what the damage would be to lake navigation, or the dire effect that it would have upon the country through which it would flow.

The idea of making the canal so large was not broached at first, so that great ships could go through it down to the sea, and from the sea through the rivers and her open sewer to the lakes, and they worked it up to a point where it was considered to be one of the grandest projects of the age, and no one having any influence along the lakes dared to offer any objections to the project.

Some members of Congress, representing districts in Illinois that would be affected, should "the grand project" be carried out, were written to, also some representing river districts on either side of the Mississippi, were written to,

giving them an idea as to the detriment that it would be, not only to the people along the line of its flow through the State of Illinois, but to the country along either side of that great river for a long ways down, by reason of the great increase of filth that would be discharged from that great drainage canal.

It is a well-known fact that the waters of the Mississippi have always been bad enough at best, and it was fully realized that the effects were bad to have it flow into the lake in the higher latitudes, where the mercury runs low and where cold winds have full force, together with snow and ice much of the time, is ever keeping the waters of the lake more or less violently agitated, tending to purify it. While on the contrary, by taking it southerly, and after it leaves Illinois, passing through that great sluggish stream, traversing a low flat country, full of swamps and morasses, where death and disease is ever lurking, flowing through a semi-tropical climate, filling the stream now fully charged, ever festering under a tropical sun, increasing the quantity of poisoned laden filth, filled with food for malarial germs, to be taken up by the atmosphere, ever spreading its poisoned vapors through the already overcharged air, very rapidly increasing the death rate, and which would tend to devastate and depopulate large portions of the territory along either side of this broad open ditch crossing the State, and the river into which it is to be discharged, to a degree almost beyond comprehension, making it almost uninhabitable, especially for the Arian races, whereby there would be a tendency to a return to the condition that existed in that portion of the country in the early years of the century when the dogs had the ague, sat on the river bank in the sunshine, shook and filled the air with their pitiful howls, reverberating from shore to shore.

No attention was paid to the warnings until it was too late to stop it. It was encouraged by Congress by its grants and favorable legislation encouraging the project, and carried out by the additional millions contributed by the people of Chicago and vicinity, whereby the people of Chicago will reap the rewards, not only by getting her sewage taken to the Mississippi river, but by the benefit she will derive through the transportation of products both ways, by water, which is ever the cheapest mode of transportation, increasing her commerce with the Southern States, and the commerce of the Great Lakes must suffer for the special benefit of Chicago alone, and bad as it may be for us, we can't help it.

Congress dare not, and, therefore, will not, do anything that will in any manner interfere with the wishes of the ruling spirits of Chicago. Therefore, the only thing that is to be done is for us to grin and bear it, and keep on working and forcing Congress to continue, from year to year, in making large appropriations to be spent in widening and deepening the channels where necessary along the main routes, and dredging all the rivers and harbors along the whole chain of lakes.

I would stop talking about the non-feasible idea of constructing a dam across the Niagara, for that it is in fact a mooted question as to whether a permanent structure could be put in that river that would prove to be of any lasting benefit. If it could be built to stay, which is very doubtful, and all such experiments should have the benefit of the doubt, Buffalo would not allow the embankment, if its construction were possible, to be built so as to raise the water much above its normal height, and that would only benefit the lower end of the lake; certainly would do no good above Erie, could furnish no relief to the mouth of Detroit river, and yet you are a long way below St. Clair Flats, several feet above the mean level of Lake Erie—the place where water is most needed—so we must keep on digging or build lighter draft boats, similar to those in use 40 or 50 years ago.

There is one remedy that we have whereby we can recoup ourselves for the loss sustained by sitting idly by until it was too late, and that is, to connect the waters of the great water basin of northwestern Minnesota with the head waters of Lake Superior.

The elevation is not very great. There would be but very little, if any, rock excavation, thus the digging over the divide would not be very expensive, and when through that, the country is very flat and low with many small lakes interspersed over a large scope of territory for hundreds of miles each way, all of which could be easily utilized by cutting a large central channel from the head of Lake Superior up through this great basin, from lake to lake, with smaller ditches so as to make cross connections with the main channel, thereby furnishing drainage for all that portion of

the country, and, at the same time, replenish the loss of water otherwise sustained, while opening up millions of acres of the richest soil in that country, which is now almost valueless, which, in a few years, would become the garden of the great northwest; and if a canal of proper dimensions is constructed, suitable for navigation, which could be at a comparatively slight expense, considering the benefits that would be derived, it would afford cheap water transportation for the unlimited products that would be raised in what is now known as almost a wild and uninhabited waste.

S. C. WHEELER.

THE LARGEST SHIPS AFLOAT.

The Oceanic is easily first in the list with a gross register tonnage of 17,000, and her nearest rival is the German s.s. Deutschland, 15,500 tons followed by the Kaiser Wilhelm der Grosse, 14,349 tons, and the Patricia, 13,000 tons, all flying the German flag. Next come the Lucania and the Campania, of 12,952 and 12,950 tons respectively. The Germans again come in with the Pennsylvania, 12,891 tons; the Graf Waldersee, 2,830 tons, and the Pretoria, 12,800 tons register. The next largest boats are the Cymric, 12,52 tons, the Medic, 11,850, and the Afric, 11,816; while the Germans can place against them the Grosser Kurfuerst, 12,500, the Kaiser Friedrich, 12,480, and the Belgia, 11,100 tons. Under the British flag there are only nine steamers of over 10,000 tons register, against nineteen similar German steamers. The United States own four steamers of over 10,000 tons (the St. Louis and St. Paul, 11,629 tons each, the Paris, 10,669, and the New York, 10,674). No other nation possesses a single ship of over 10,000 tons register. The British own 47 steamers of between 7,000 and 10,000 tons, 288 of between 5,000 and 7,000, 273 between 4,000 and 5,000, and 741 between 3,000 and 4,000 tons, which may be taken as the second, third, fourth, and fifth classes for comparative purposes. Germany possesses 13 boats in the second class, 46 in the third, 42 in the fourth, and 68 in the fifth class. France has 4 in the second, 15 in the third, 28 in the fourth, and 65 in the fifth class. The United States comes next with 9 in the second and third classes combined, 30 in the fourth, and 65 in the fifth class. Spain is the next largest shipowner with 2 in the second class, 5 in the third, 8 in the fourth, and 21 in the fifth class. The Dutch flag covers 2 second-class boats, but none in the third and fourth classes; and the other nations must be relegated to the third, fourth and fifth classes, and mainly to the latter.

A PASSENGER LINE BLACKBALLED.

The recent loss of the steamship Bourgogne, of the French Line, which will be remembered because of the shameful exhibition of the brutality made by the crew, who sacrificed the lives of the passengers in order to save themselves, cost that line more than a quarter million dollars in receipts apart from the value of the ship. Consul Thackara, at Havre sends an analysis of the report of the French Line for 1898. The net value of the company's holdings in steamship, real estate, etc., had decreased during the year \$1,434,309. The diminution of the company's receipts on its New York line, due to loss of travel after the Bourgogne disaster, amounted to \$318,483. The company established a number of agencies throughout Europe, and entered actively into the emigrant carrying trade, to recoup itself for the disastrous loss of first-class American travel. But even the receipts from this undesirable class of passengers, and its many different branches outside the American trade, enabled the directors to declare only an annual dividend of fifteen francs (\$2.895) per share, whose par value is 500 francs (or \$96.50).

The company has recently purchased the twin-screw auxiliary cruiser Patriota, from the Spanish Government. This vessel, which was formerly the Normannia, of the Hamburg-American Line, will be named the Aquitaine, and will run between Havre and New York, to replace the Bourgogne.

THE Journal of Geology is authority for the statement that a new mineral has recently been discovered which, as a fuel, is far superior to coal. The substance, which is of a lustrous black color, is found on the Island of Barbados, and is called by the natives "manjak." It is thought that manjak is petrified petroleum, great quantities of petroleum being found on the same island. It contains only 2 per cent. of water and fully 27 per cent. of solid organic matter, thus surpassing in utility the best asphalt of Trinidad, in which 30 per cent. of water is contained, and which has been classed so far as the very finest fuel.



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CLEVELAND, O., SEPTEMBER 14, 1899.

THE query before the western country, also a matter of vital importance to many eastern interests is, how not to tap the lakes.

THE first obstruction that is placed to prevent the usual natural flow of water from the lakes, will be the signal for us to look for an increased supply.

WONDER how the other fellows would like it if the waters from the upper Mississippi were made to flow toward the head of lake navigation?

How would the lake water be affected, so far as for drinking purposes and domestic uses are concerned, if obstructions were to be placed so as to make each lake a dam?

THE American Ship Building Co. should now begin to think about putting one or more of their plants under cover, so that work could be carried on with some degree of regularity and comfort during the winter months.

SYREN and Shipping, London, boasts of being three years old. She's an elegant, lusty little youngster anyway, and betokens a growth of as many decades as registered annuals. Long may she send out her Syrenic blasts to shipping.

LET it stand as a newly discovered theory and truism that neither ships nor sailors can be created in a day, also that a navy without sailors is useless, furthermore, ships must be built and sailors created, therefore let us proceed to process, as Josh Billings says, or someone else, the way to do a thing is to do it.

THE Waterways Journal, St. Louis, Mo., says "that the entire improvements of the rivers, at the expense of millions of dollars annually, is a farce pure and simple." We don't find it so on the lakes, every cent expended for the conservancy and improvement of rivers and harbors is returned ten fold to the nation at large.

POLITICS, religion or scandal should have no place in the columns of a technical or class paper. There is talent enough engaged in the two former branches of personal beliefs to keep up a lively discussion and interested agitation throughout the country, the latter feature must be left to the "yellow journals" and "blue" literature.

THE Winifredian on leaving Boston for Liverpool on her latest trip had a draft of 31 feet 8 inches. The Hamburg-American line steamer Bengalia, on leaving Baltimore for Hamburg, had a draft of 30 feet. Both of these are record drafts for the ports named. Now talk about inter-lake trans-Atlantic traffic. It is quite probable that six fathoms from Duluth to the coast will not be in evidence during this generation, if ever.

LAKE FISHERIES.

The United States commission has for two summers past been carrying on investigations of rare importance resulting in scientific data of great practical value to one of the most important industries of every city along Lake Erie. The work at present is located at Put-in Bay, where any citizen is made welcome to examine the same and the interesting processes. Prof. Ward, of the University of Nebraska, and secretary of The American Microscopical Society, is heading the work. His learning and scientific skill are guarantees that the work will result in both gain to science and profit to the commercial interests of the state. The attempt in this biological investigation of the lake is to do for lake industries what the state and national agricultural stations have done for the agricultural industries. The design of the government is to make at some place a permanent station, and have also a floating laboratory which can be sent from place to place as need may require. The work of the gentlemen is along both zoological and botanical lines. Fish and the food of fish are the matters under investigation. The stocking of the lakes with proper fish and the means of sure development of the fish after the lake is stocked are also within their province.

WE are pleased to learn that the Supervising Inspector-General of Steamboats has issued an order which will tend to the better inspection of passenger steamer equipment, and especially so, as regards small boats and their apparatus for hoisting and lowering, fittings, etc. Too often are small boats seen in their chocks frozen stiff with repeated coats of paint, and the davit tackles with the appearance of having been rove off years ago, and never touched afterwards. The RECORD points out from time to time, such discrepancies as the foregoing, not in a carping, fault-finding spirit, but for the betterment of the general service. We would be the first to resent any unjust criticism passed upon the lake marine, and, to conscientiously do this, as it has frequently fallen within our province so to do, we must have the necessary ground work to stand on, to argue from, and to advocate the just cause. We thank the Supervising Inspector-General of Steamboats for his well-advised action in this particular direction.

THE embargo having been raised on the Lake Superior traffic through the floating of the Houghton, the down bound fleet were further held and detained in the Detroit river on Tuesday on account of shoal water at the Lime Kiln Crossing, caused chiefly by a strong northwesterly wind. Owners and managers of vessel property, shippers and consignees of cargoes, may now, perhaps, be in a position to express an opinion on the effects of tapping the lakes, the few inches of shoal water meant the loss of thousands of dollars to some of them, and yet when asked, they say "they have not studied the question of the effect of a few inches being sliced off the lake surface," "too modest to appear in print," "practical experiments will have to be made first, to show results," etc., etc. After this lesson p'raps they will aid the RECORD in our efforts to stop robbing the lakes.

PASSENGER lines of steamboats have been grumbling lately because cargo boats load all they can safely carry on the draft of water found at loading and discharging ports. The case has gone so far that a district officer of the Corps of Engineers, U. S. A., has been asked to take up the question and see if he can't prohibit boats loading at, to, or for any port, where, through a shift of wind, or other local cause, the water may be found scant and there may, consequently, be some danger of the loaded boat grounding. Let's see, how would it do to advocate a separate shoal channel for the passenger trade and a broad deep channel exclusively for cargo carrying steamers? Some one thought of something similar before, but this is simply a suggestion.

WE seldom find shipping interests on the Atlantic, Pacific or Gulf coasts championing causes which may tend to the special welfare of the lake marine, truth to tell, they seldom ask the lake community to shoulder the cudgels in their behalf either. The highest degree of excellence in opinions, advice, or action in special questions, is attained after a due consultation with those most directly, locally and vitally interested in the outcome of any important measure. In line with the foregoing, we desire that all interests wishing to see the present lake levels maintained, will signify so by putting their views on paper, and addressing same to the RECORD.

THIS raving about the greed of vessel owners loading their vessels to a draft where there may be a possibility of detention through grounding, ought to be stopped. These are not the days of canal schooners, when a twelve foot draft brought the vessel's scuppers awash. Cargo steamers 475 feet in length usually load to a draft of 25 and 30 feet at coast ports, and many harbors have been deepened solely for that purpose. It is simply ridiculous to say that a similar craft on the lakes must go along two-thirds out of the water, in ballast time, on an 18 feet draft. These vessels require at least 25 feet of water and they should have it to move in, not a paltry 17 feet 6 inches with a chance of detention or grounding even at those figures.

CONGRESS, the Senate and House of Representatives inclusive, frames the national policy. From a purely patriotic standpoint, coupled, of course, with an annual monetary consideration, the citizens are entitled to the best that can be evolved from the minds of those who by education, training and experience are capable of voicing the sentiments of their constituents, and are sent to Washington expressly for that purpose. Now gentlemen! politicians, legislators, statesmen and diplomats, what about an American merchant marine in the foreign trade? Are we to have one or not, and if not, why not, and if so, how and when?

THE wrecking work done on the Houghton is the wonder and admiration of the day. There is nothing in the annals of wreck raising to compare with it. A 600-ton steel steamer, loaded with iron ore, Hobsonized in a rock bound channel, a strong current running, etc., floating and proceeding under her own steam, towards her destination, in less than six days is a world's record. Touch it, if you can, effete eastern maritime monarchies, or any old world combinations.

THE embargo placed on Lake Superior commerce through the sinking of the Houghton in the "Soo" river began Tuesday, September 5, and was raised on Sunday, September 10th. Estimated financial loss, under present conditions, \$1,000,000. This amount may be increasingly revised when detailed particulars of all losses are computed.

LAKE FREIGHTS.

Lake Superior holds the key to the lake freight situation, and, as traffic has not yet been fully resumed, it is difficult to quote figures to be paid even a few days in advance of present writing.

Ore charters are still at \$2 from the head of the lakes. Marquette, nominally \$1.55 and Escanaba \$1.25.

The Duluth grain rate dropped to 5½ cents, but as vessels couldn't enter Lake Superior the ½ cent decrease is considered as only a shipper's feeler passed on through the broker, and that rates will be 6 cents when vessels are ready to accept loading terms. Chicago rates are firm at 3½ cents on corn.

Coal, Buffalo to Lake Michigan \$1, to the head of the lakes 60 cents, with a 10 cent advance to minor ports. Ohio shippers hold to 50 cents for the head of the lakes, but paid \$1 to Lake Michigan on latest charters, an advance of 10 cents; Gladstone 70 cents, Escanaba 75 cents, Green Bay 90 cents.

Lumber rates from Lake Superior to Ohio ports are firm at \$4 per M feet.

The blockade to Lake Superior has delayed the shipment of fully 300,000 tons of ore, possibly three-quarters of a million bushels of grain, and upwards of ten million feet of lumber. More than 200 of the largest carriers afloat have been delayed for an average of eight days, and all this at a cost which can not be estimated in all its bearings, but at a positive and direct loss which can be seen, of, say \$1,000,000 more or less.

WATCH THE HARBORS.

THE MARINE RECORD with its articles on the lake levels and the danger from tapping the Great Lakes should be in the hands of every Congressman. It is proposed now to supply New York City with water drawn from Lake Erie, and all along the lakes there are proposed schemes to make canals that in one way or another draw the water from the lakes. If the Chicago canal lowers the lakes four or five inches, and another is made connecting Lake Erie with the Ohio, another with the Hudson and so on, what will the result be? The river harbors are shallow enough now. Congress should give this matter consideration and the MARINE RECORD is a hand book on the subject.—The Times, Lorain, O.

THE ST. LAWRENCE ROUTE.

A conference between members of the Canadian and Marine Insurance sections of the London Chamber of Commerce, the Timber Trade Federation, shipowners, and others was held recently at the office of the London Chamber of Commerce.

Mr. Charles T. F. Churchill (Churchill and Sim) was voted to the chair, and explained that the object of the meeting was to hear a statement by the Hon. R. R. Dobell, member of the Canadian Ministry, as to the steps which the Canadian government were taking to render the navigation of the St. Lawrence channel safer, and to consider whether the time had not arrived when a reduction in the present high rates of insurance for vessels to and from British North America should be allowed.

After expressing himself at some length, Mr. Dobell stated that the necessity for a reduction in the rate of insurance was far greater than appeared on the surface. After the 1st of September the Welland canal system, with 14 feet of water, would be ready for traffic from the extremity of Lake Superior to the St. Lawrence, and whilst to-day the St. Lawrence was only drawing about 7 per cent. of the western trade, there was every reason to expect a great increase in this. Mr. Dobell then read the following extract from a letter written by Mr. Alexander McDougall, of Duluth:

"I am of the opinion that the Canadian people do not fully realize what a great commercial highway the St. Lawrence canals are going to be, and that very shortly after the opening. It is as natural for the western products to go through that way as it is for the waters of the Great Lakes to flow out through the St. Lawrence river, and I think that the canals will be taxed to the utmost capacity in the very near future. There will be a very vast amount of wheat from the Canadian northwest and Ontario; wheat and corn from the western States; corn from the middle western States seeking a cool route during the germinating season; iron ore, both from the Canadian and American sides of Lake Superior, and manufactured iron from the lake region for export; forest products from the lake region, as well as from the Pacific provinces and western States; also cattle and all kinds of farm products seeking a European market; and with this large demand for movement, the capacity of the St. Lawrence canals will soon be reached, which at first would be about 3,000,000 tons a year in one direction, but by degrees and experience, as ships are built more to the requirements of the trade, and men and managements become more apt, the capacity by hand operations may be doubled, and later on when the power of the falls and rapids alongside are taken full advantage of for lighting purposes by night, and the operations of the system, such as closing the gates and the hauling of the vessels through the canals, under the control of the government, this canal system could be made to handle 12,000,000 tons in each direction, and products from the western States could be carried through its system cheaper than it can ever be done through the United States to Atlantic ports, and under such favorable advantages, business will be forced upon this route to the sea in great volumes."

Commenting upon this statement, Mr. Dobell said he did not consider the picture at all overdrawn; in the near future the St. Lawrence would be the great transshipping route for North America. Whilst Canada is making every effort to increase the volume of trade between herself and the mother country, it would be seen at once that this discrimination in the insurance rate for British North America as compared with the other Atlantic ports would seriously militate against shipments from the St. Lawrence. Considering the large number of steamers which now go to the St. Lawrence every year, it is quite evident that the risk is not anything like so great as it used to be, and as the coast is better lighted, the currents better understood, the pilots more carefully chosen, and the buoys more exactly placed in position, and a closer supervision taken of these services (which had been arranged for by placing them in the hands of the Canadian Minister of Marine) such a discriminating rate as £3 3s per cent. for loading on the St. Lawrence was not warranted, and should be removed.

THE steel cargo steamer, building by the Wolff & Zwicker Iron Works, Portland, Ore., for the Alaska Packers' Association, San Francisco, is to have a steam windlass, a Shaw & Spiegel patent automatic steam towing machine and a steam cargo winch from the American Ship Windlass Co., Providence, R. I. The Ohrvikens Aktiebolag, of Skelleftea, Sweden, recently ordered by cable one of the Shaw & Spiegel patent automatic steam towing machines for one of their steamers. The reputation which this towing machine has attained as the only machine which absolutely limits and controls the strain on a towing hawser and prevents the hawser from parting, has induced them to adopt the appliance for their vessel.

WIRELESS TELEGRAPHY FOR NAVAL USE.

A most remarkable demonstration of the practicability of the use of wireless telegraphy in connection with naval operations has just been made under the personal supervision of Marconi, the inventor, during the cruise of the British squadron. With the detached squadron was the Europa, which had been fitted in a hasty manner with the Marconi system. In the other portion of the fleet were the flagship Alexandria and the cruiser Juno. On the latter vessel Marconi had himself installed the wireless system. When communication was first established the Juno was more than 40 miles away from the Europa. Having received a message from the Europa relative to her consort, the Juno turned and steamed toward the flagship, and was enabled when more than 30 miles distant from that vessel to communicate to Sir Compton Domville, the commander, the Europa's message. A second test was made and proved equally successful, and the whole trial is regarded in British naval circles as a veritable triumph for Marconi.

THE PACIFIC CABLE.

The British Pacific cable, which is now soon to be begun, will be 7,986 miles long, extending from Vancouver by way of Fanning Island and Fiji to Norfolk Island, and thence by branches to New Zealand and Australia. The cost is placed at \$7,500,000 and is to be borne by Canada, Australia and the British government, but chiefly by Australia. The object is to unite the scattered fragments of the Empire more closely, and also to reduce cable rates. At present the rate is \$1.18 between Great Britain and Australia by the Eastern route. This will be materially reduced at once, and as the enterprise is to be a government undertaking, rates will be continuously reduced as fast as increase of business justifies it. Existing private cable companies are, of course, fighting the project all they can.

LETTERS AT DETROIT MARINE POST OFFICE.

SEPTEMBER 13, 1899.

To get any of these letters, addressees or their authorized agents will apply at the general delivery window or write to the postmaster at Detroit, calling for "advertised" matter, giving the date of this list and paying one cent.

Advertised matter is previously held one week awaiting delivery. It is held two weeks before it goes to the Dead Letter Office at Washington, D. C.

Bollyea, Lewis
Burk, George
Boomer, George
Carr, Chas.
Coomk, Ida
Cox, Arthur
Dwyer, W. J.
Dunlap, John, J. Mitchell
Ellery, W. H.
Edwards, Thos. E.
Gilbert, Arthur
Gilleland, S.
Hanlon, John, Cambria
Hay, James
Hall, Maxwell
Henderson, R.
Hauer, Chas.
Kline, Louis A., 2
Kurtz, Geo. O.
Kuss, Julius, 2, Chili
Larsen, Capt. H.
Moore, Hon. J. S.

Miller, B.
Marks, Chas. H., Wallula
Montroy, Archie, Wallula
Minor, Arthur
Marks, Charley, Wallula
McCarty Wm., 2, N.C. Holland
McIntyre, Sandy
McArthur, J.
McDougall, C. M.
McKonney, I.
Nelson, John, Guma
Perry, Mrs. Wm.
Raymond, Frank, Cort
Rice, James
Sawyer, Will, Yakima
Stockwell, John
Scott, John N.
Warner, F. H.
Warren, Tom
Wagner, Joseph, Rees
Williams, A. M.

MARINE PATENTS.

Patents on marine inventions issued Sept. 12, 1899. Reported specially for the MARINE RECORD, which will furnish complete copies of patents at the rate of ten cents each.

632,738. Covering for bodies impelled through water. James O'Hara, Toronto, Canada.

632,741. Combined wagon and boat. A. C. Peterson, Victoria, Ill.

632,826. Wave-motor. M. B. Rice, Tustin, Cal.

632,833. Wave-motor. W. A. Cheney, Los Angeles, Cal.

632,919. Apparatus for destroying teredos and other marine growth. J. W. Farley, Crawfordville, Fla., assignor of one-half to L. L. Yent, Carrabelle, Fla.

632,985. Bridge. W. L. Brayton, Harrisburg, Pa.

633,065. Boat adapted to operate on land or in water. J. P. Boulesque, New York, N. Y.

A MOVEMENT is to be started by Pittsburg rivermen to have a change made in the law under which steamboats are inspected. The inspectors of that district must pass 150 vessels a year as being sound and seaworthy in order to get full salaries. If they certify to 149 and refuse a certificate to the 150th vessel, \$300 is deducted from their pay. What rivermen want is a law that will tempt no man to pass a vessel that is not in first-class condition.

TRIAL TRIP U. S. S. ALABAMA.

Capt. W. H. Brownson, U. S. N., in an official report referring to the recent preliminary trial of the U. S. S. Alabama, constructed by the Messrs. Cramp, of Philadelphia, after giving the time between the different points in the first run, which was made at speed of 15.45 knots per hour, and of the second run, which was made at a speed of 17.19 per hour, giving an average for the two runs of 16.32 knots, says: "The speed was based on the distance between the two lightships, 11.25 knots. The weather was squally, with fresh wind and sea from the northward and eastward, and doubtless interfered seriously with the speed of the ship on runs. No defects of a serious nature developed, and, all things considered, the trial may be considered as highly satisfactory." The Alabama was designed as a 16-knot vessel, and the fact that she has, through modifications in her plans by her builders, exceeded the speed originally laid down, reflects great credit on the enterprise and ability of Messrs. Cramp.

UTILIZING ELECTRICITY.

"We are near to a realization of Franklin's plan for harnessing the electricity of the air, and the twentieth century is likely to develop a practical method of utilizing atmospheric energy for industrial purposes." Such is the startling prediction made by Prof. Alexander G. McAdie, of the United States Weather Bureau. Of late he and other Government experts have been duplicating the famous Franklin experiment, with modern improvements, sending up new-fangled box-kites on "strings" of piano wire, and drawing down lightning in quantities that would have astonished the sage of Philadelphia. But perhaps the most remarkable discovery made incidentally to these new researches, is that the electricity of the atmosphere may be obtained in big sparks from a clear sky, not a cloud being in sight. So much electricity comes down the wire that it has been utilized for running a little machine with pasteboard wheels, and in this apparatus is found the beginning of the mechanism of the future, that is expected to utilize the energy hitherto held useless in the atmosphere.

TERRESTRIAL MAGNETISM.

G. Hellmann points out in Terrestrial Magnetism that after Columbus discovered the variation of the magnetic declination in 1492, the belief gained ground among mariners that the longitude could be immediately determined from the variation; but Mr. Hellmann points out that the variation remained unknown, outside nautical circles, until it was independently discovered in connection with the use of the compass for portable sun dials. It was George Hartmann, a mathematical instrument maker at Nuremberg, who discovered the magnetic variation on land and found it to be only six degrees east at Rome in 1510. For nearly one hundred years after this discovery most of the writers on magnetism and dials omitted all mention of the declination and assumed that the needle pointed true to the polar star. By sighting along the needle to the polar star, the variation was measured.

LIFE-SAVING APPLIANCES.

In its endeavors to improve the national marine life-saving system, the United States Board for that purpose has recently examined a considerable number of appliances brought to its attention by inventors. Among these is a model of a serpentine ship, constructed by James Graham, the peculiar feature of which is that the body of the ship will revolve in the water and the occupants will be in an interior cylinder. Perhaps a more practicable idea is that presented in the make-up of life preservers as developed by C. Moller, of Norway, who has made a padded vest and used reindeer hair for padding, the claim being that such hair, whether dry or wet, is as buoyant as cork and more durable.

RECORDS show that the Norwich, a side-wheel towboat belonging to the Cornell fleet at Rondout, and plying on the Hudson river, is the oldest steam vessel in existence, we believe; certainly she is the oldest in this country. She was built in 1836, and first ran on Long Island Sound. She is of 255 gross tons, and was built by Lawrence & Sneden. She has her original engine in her, which is of the square or "cross head" variety, the last of its kind in existence.

OWING to the difficulty in procuring steel, it is expected all the shipbuilders engaged in constructing torpedo boats will ask for an extension of time to complete their contracts. One firm has already asked for an extension of one year.

Almy's Patent Sectional WATER TUBE BOILERS.

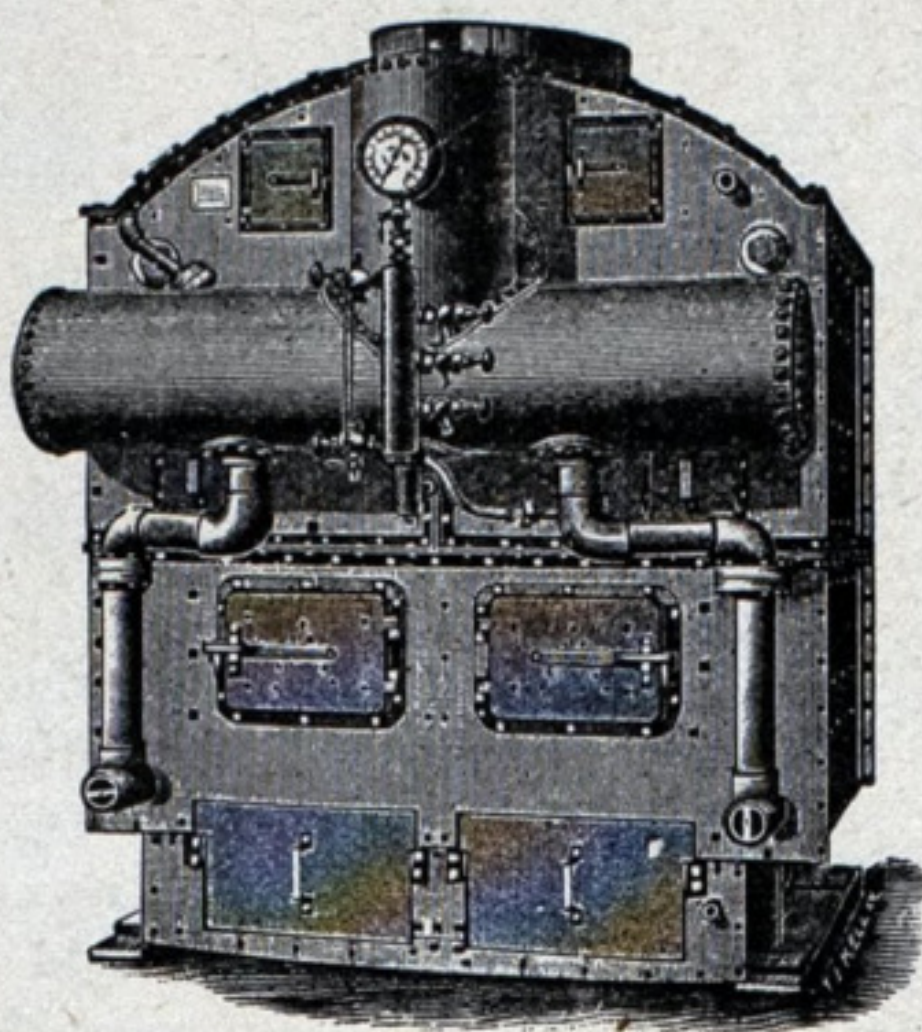
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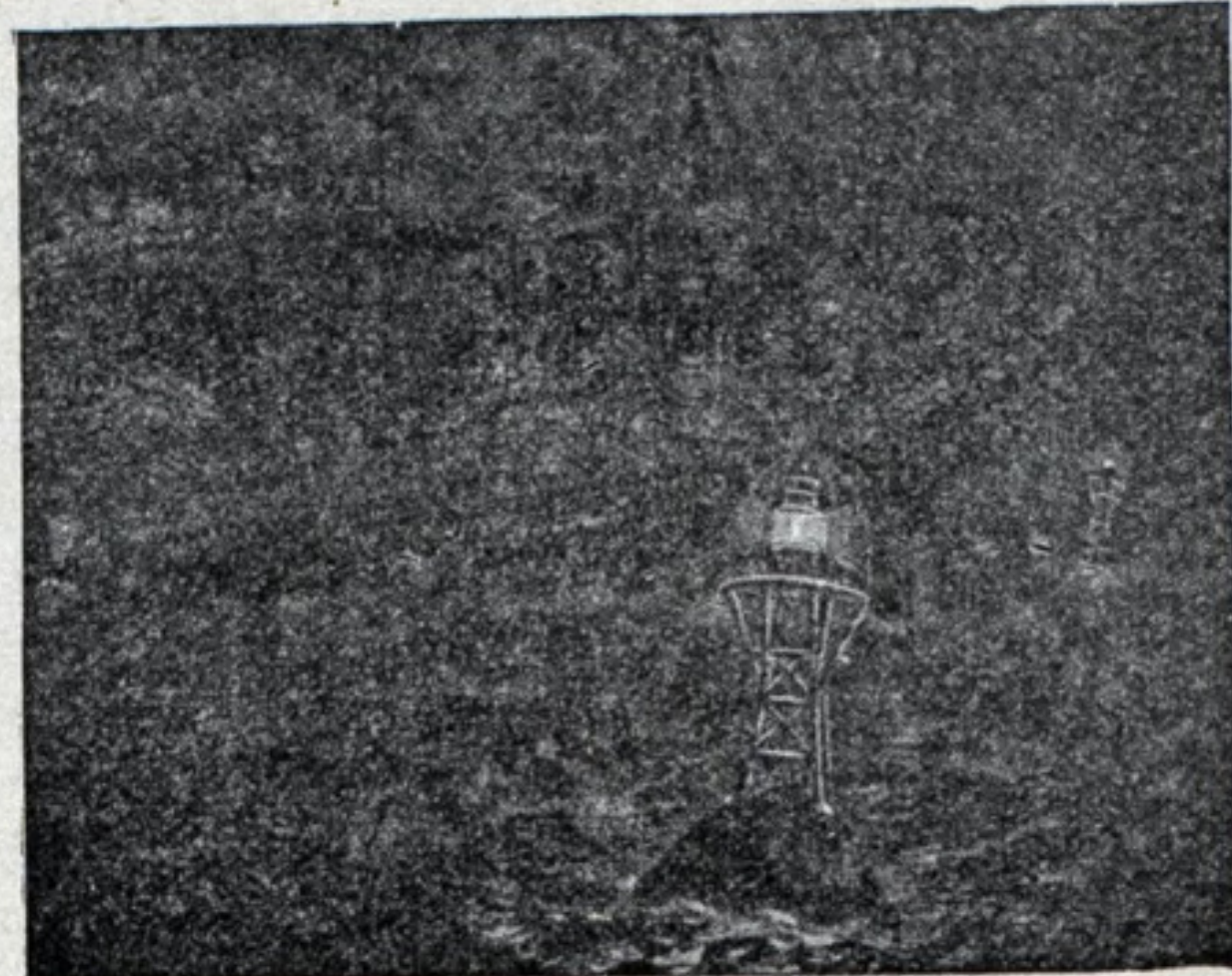
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THE OLDEST IRON STEAMSHIP IN THE WORLD.

Of the United States steamer Michigan, on Lake Erie, which is the oldest iron steamship in the world, her commander, Lieut.-Comdr. C. P. Perkins, gives the following particulars in Cassier's Magazine for September:

The vessel was constructed at Pittsburg, Pa., in 1841-43; the parts were transferred to Erie, put together and launched Dec. 5, 1843. The original machinery, with the exception of the boilers, is still in her and in good condition. The vessel is an iron paddle-wheel steamer of 685 tons displacement; length of keel, 156 feet 4 inches; length between perpendiculars, 162 feet 6 inches; breadth of beam, 27 feet; depth of hold, 12 feet 5½ inches.

There are two inclined direct-acting engines. The paddle-wheels are of the usual radial kind, 21 feet 6 inches diameter, with 16 paddles, 8 feet long by 1 foot 4 inches wide. There are two steel boilers of the flue and return fire-tube type, 9 feet 6 inches in diameter by 15 feet 2¾ inches in length over all; two furnaces in each boiler, 6 feet 6 inches by 3 feet 6 inches in diameter, and have each a grate surface of 22.75 square feet. The total grate surface is 91 square feet, and the heating surface, 1,286 square feet. There is one smoke-pipe, 4 feet 4 inches in diameter, at a height of 42 feet 2 inches above the grates. Total weight of boilers, 47 tons.

There are five heavy box keelsons, which run the whole length of the vessel. The distance from center to center of frame is 24 inches; frames of T iron, 4½ inches by 4 inches; with reverse bars, 4 inches by 2½ inches; keel plates, ¾-inch thick; bottom and bilge plates, ¾-inch thick; side plating and run aft, 5-16 inch thick; stem and stern posts, 6½ inches by 1½ inches; shear strake and plating carried up to the rail, ¾-inch thick; deck beams are of T iron.

The vessel has been in continuous service to the present time over 55 years, and is apparently as good for service as ever. During all these years of service no sign of weakness was exhibited.

Her armament at the present time consists of six 6-pounders, two 10-pounder rapid-fire guns, and two machine guns. Of late years her principal occupation has been in the instruction of the United States naval militia at the different lake ports, and surveying.

EASTERN FREIGHTS.

Messrs. Funch, Edye & Co. sums up the eastern freight situation as follows:

The enquiry for grain steamers, especially of larger size, from range for picked ports to load the latter part of September or October, is broadening, and freights for that period are well maintained at former quotations. A feature of the present position of grain freights is the demand of charterers for vessels willing to fix for a succession of three trips on terms of the first engagement, the privilege of part cargo oats together with heavy grain being equally looked for. As a matter of especial interest, we beg to point to a charter of maize from Virginia to Reval. In spite of the good prospects for grain freights during the fall months, berth rates and freights for open vessels desiring grain continue weak under the short immediate supply of grain, and some of the latter boats will very shortly have to face decidedly lower freights than those at which owners momentarily hold. A very fair amount of chartering has been effected from the Atlantic cotton ports for September loading,

and this has materially assisted prompt boats, reduced in default to the acceptance of grain, at the momentarily depressed rates, or of deals; timber freights from the Gulf being of little assistance to near-by tonnage. The Gulf continues taking vessels for this year's winter months on terms latterly established, but there is evidently not so much snap in the business as was shown during the preceding week, and we fear that an attempt of owners for some increase will not be successful. The Atlantic cotton ports are now bidding very conservatively for boats to yield October and later loading. Spot time charterers for general purposes have entirely withdrawn from the market, in view of the very high figures latterly secured by owners from the Gulf, and which have caused a very heavy advance in owners' views for further fixtures, both as to time and duration of term of hire.

SUN'S AMPLITUDES.

The following approximate amplitudes of the Sun's rising will be given each week in this column during the season of navigation. A second bearing may be taken by compass at sunset, by reversing the east bearing given for the nearest latitude, as the change in declination for a few hours makes but a slight difference in the true bearing of the Sun's setting. The bearing may be taken when the Sun's center is on the horizon, rising or setting. The three elements which may be obtained by taking these amplitudes are the quantities known as local attraction, variation and deviation.

LAKE ERIE AND S. END LAKE MICHIGAN, LAT. 42° N.

Sunrise.	Amplitudes.	Bearing P'ts.	Bearing Comp.
Sept. 15....	E. 4° N. =	N. 7½ E. =	E. ¾ N.
Sept. 18....	E. 2° N. =	N. 7¾ E. =	E. ¼ N.
Sept. 20....	E. 1° N. =	N. 7¾ E. =	E. ¼ N.

LAKE ONTARIO, S. END HURON AND CENTRAL PORTION LAKE MICHIGAN, LAT. 44° N.

Sunrise.	Amplitudes.	Bearing P'ts.	Bearing Comp.
Sept. 15....	E. 4° N. =	N. 7½ E. =	E. ¾ N.
Sept. 18....	E. 2° N. =	N. 7¾ E. =	E. ¼ N.
Sept. 20....	E. 1° N. =	N. 7¾ E. =	E. ¼ N.

N. END LAKES HURON AND MICHIGAN, LAT. 46° N.

Sunrise.	Amplitudes.	Bearing P'ts.	Bearing Comp.
Sept. 15....	E. 4° N. =	N. 7½ E. =	E. ¾ N.
Sept. 18....	E. 2° N. =	N. 7¾ E. =	E. ¼ N.
Sept. 20....	E. 1° N. =	N. 7¾ E. =	E. ¼ N.

LAKE SUPERIOR, LAT. 48° N.

Sunrise.	Amplitudes.	Bearing P'ts.	Bearing Comp.
Sept. 15....	E. 5° N. =	N. 7½ E. =	E. ¾ N.
Sept. 18....	E. 3° N. =	N. 7¾ E. =	E. ¼ N.
Sept. 20....	E. 1° N. =	N. 7¾ E. =	E. ¼ N.

With a compass correct magnetic, the difference between the observed and true bearing or amplitude will be the variation for the locality. Should there be any deviation on the course the vessel is heading at the time of taking the bearing, the difference between the observed and the true amplitude after the variation is applied will be the amount of deviation on that course. If the correct magnetic bearing is to the right of the compass bearing, the deviation is easterly, if to the left, the deviation is westerly.

In a builders' trial trip on September 5, off the Virginia capes the U. S. S. Kearsarge, under forced draught, according to private advices, maintained a speed of 17¼ knots for half an hour, which it is held gives her the record as the fastest battleship in the Navy. The official trial trip is to be made on October 1, when, with a clean bottom, she is expected to do still better. In testing her steering gear the vessel made a complete turn in 2½ minutes.

NOTES.

THE import duty on iron ore is 40 cents a ton, with no deduction for moisture. At present the United States and Russia are the only countries imposing a duty on iron ore, the Russian duty being \$3.34 per ton of 2,240 pounds.

THE Hon. C. A. Parsons, of England, the owner, builder and inventor of the Turbina, suggests the building of an unarmored cruiser fitted with the turbine propelling arrangement. The ship would be of 3,000 tons displacement, 450 feet in length, 42 feet beam, and 14 feet maximum draught of water, carrying turbine engines and boilers of 120,000 maximum horse-power, the boilers being of the water tube type, arranged in two tiers. This vessel would in emergency be capable of speeding 48 knots, and maintain this speed for three hours; or she could maintain a speed of 45 knots for eight hours. She would be difficult to hit with shot, and her speed being 18 knots greater than that of any locomotive torpedo, she could well take her chances in this respect.

NOT much unlike the Milky Way is the zodiacal counter-glow or gegenschein, seen best in September and October, and not at all in June and December. It is best seen at midnight when lying away from the path of bright stars, and it is always opposite to the sun. It is best seen by indirect vision, or when looking at something else near by—out of the tail of the eye, as the saying is. There is, besides, a zodiacal band, noticeable in the fall of the year, which is six or eight times the breadth of the moon and crossing the entire heavens. All these phenomena are supposed to be due to cosmical dust scattered about the sun, and faintly reflecting its rays. This dust is made up of the fragments of comets, of the meteorites or star showers, and of still smaller particles than these last.

THE effects of the suggested improvements at the Welland canal are shown in the following comparison: The steamer Bannockburn made 17 eastward passages through the Welland canal to Kingston in 1898, paying \$3,715.32 in canal dues (including the westward passages) her capacity being limited to 65,000 bushels of wheat on a 14-foot draught. A modern vessel carrying 108,000 bushels of wheat on an 18-foot draught, and lightering into floating elevators, as outlined, would yield over \$6,000.00 in canal dues on the same number of trips, as the carrying capacity on the 17 trips would be 731,000 bushels greater. Modern vessels, having proper terminal facilities, could make 22 similar round trips each year. Ten such vessels during the season would be capable of carrying over 24 million bushels of wheat, yielding in canal dues about \$80,000.00.

DURING the coming winter some interesting experiments are to be made with floating receptacles, which are expected to develop much valuable information regarding the North Pole. The Geographical Society, of Philadelphia, has arranged to distribute a number of iron-bound oaken casks among the sailors visiting the extreme northern waters, with directions to set them adrift in the Arctic Ocean north of Alaska and the Bering Sea. The expectation is that one or more of these casks will succeed in drifting across the Arctic to the north of North America, and be recovered in the entrance to Baffin Bay or Davis Strait. The result of the experiments will prove of the greatest value to future seekers for the Pole, as it will either confirm or deny not only the existence of a northwest passage, but will also tell whether or not it is possible for persons to reach the Pole by drifting.

BOOM IN SHIPBUILDING.

It is unfortunate, perhaps, that commercial considerations should in any way enter into the coming international yacht race. But there are such considerations involved, and it would be folly to ignore them. It happens that at the present time there is a boom in shipbuilding, not only in this country, but in many others; and if the Shamrock should win her victory it would be a notable advertisement for the British shipbuilders. Capital would certainly be made for them out of our defeat, and their shipyards would feel the beneficial effects for years to come. Now we are recognized as the equal of any in shipbuilding, but the loss of the cup would advertise us to the world as second to England. The victory would be, not for the Shamrock alone, but for British shipcraft as a whole, and millions would be spent where the Shamrock was built. There are indications that the Englishmen are fully awake to this fact, and we ought to be also. It would be a good thing, of course, for international sport if the Columbia should be defeated, but it would be a bad thing for American shipbuilding. There is no impropriety in considering this phase of the coming race. The ultimate justification of all speed contests, whether between boats, horses, bicycles, automobiles, or what not, is the effect of them on the development of the practical facilities of life.

WOULD LOWER LAKE LEVELS.

In reference to the rumored project to construct a canal in Canadian soil, connecting Lakes Erie and St. Clair, and the report that Col. Lydecker had been instructed to investigate the effect of such a canal, Lieut. Col. W. P. Anderson, Chief Engineer of the Canadian Department of Marine and Fisheries, writes as follows to the Detroit Free Press, in reply to a letter addressed to him on the subject:

"There is no question that a canal of this kind would have a tendency to lower the level of Lakes Huron and Michigan, and any such lowering would be serious calamity to the shipping interests. I think nothing but good can come of the appointment of Col. Lydecker to report upon the project from an engineering point of view but I feel that something more ought to be done. I believe that a joint commission of engineers from both countries should be appointed to consider the general question of lake levels. The power canals at the Sault, the Chicago drainage canal and the deepening of the channels in the Detroit and Niagara rivers are all improvements that are calculated to affect the levels of the lakes, and where every inch of water is a consideration to the large freight vessels now employed, steps should be taken to prevent any further lowering of the lakes. This can only be attained by the co-operation of both governments, and after a great deal of engineering investigation has been done."

THE LARGEST SHIP.

The great White Star line ship built on the Clyde, will arrive in New York early this week. Her length is 704 feet, beam 68 feet, depth of hold 44 feet; gross tons capacity 17,000, or 5,000 more than the Cunarders, Campania and Lucania. The cost of this monster of the deep, complete, will be \$5,000,000. She will have accommodations for 300 first cabin, 410 second cabin, and 1,000 steerage passengers, 1,710, and her crew will be 390 men, making a total of passengers and crew of 2,100 souls, when her complement shall be quite full.

The following table shows that the Oceanic is a good deal larger ship than was the celebrated Great Eastern:

Names.	L'gth. ft. in.	Beam ft. in.	Depth ft. in.	Displ. tons.
Great Eastern.....	680	83	57 6	27,000
Britannic.....	455	45	36	8,500
Arizona.....	450	45 2	37 6	.....
Servia.....	515	52	40 6	9,900
Alaska.....	500	50	39 8	.....
City of Rome.....	542 6	52	38 9	11,230
Oregon.....	500	54	40	.....
Paris.....	527 6	63	41 10	13,000
Teutonic.....	565	57 6	42 2	12,000
Campania.....	600	65	41 6	.....
Kaiser Wilhelm der Grosse....	625	66	43	20,000
Oceanic.....	704	68	49	28,500

The table covers a period forty of years, the Great Eastern making her first voyage in 1858, when it was found that the harbor of Portland, Maine, was the only one on our eastern coast that she could enter, whereas the Oceanic will sail right up to the White Star line wharf in East River.

The Germans thought they had "reached the limit" in size with the Kaiser Wilhelm der Grosse, but the White Star line, has seen their biggest and gone 8,500 tons beyond it in displacement, and exceeded the German ship in all points as to size.

WATER SPOUTS VISIBLE.

A series of water spouts were visible over the lake this morning at 8:30 (Monday, Sept. 11). A heavy cloud with a well defined front, extending from the northwest to southeast, was moving rapidly over the lake eastward. While there was little commotion of the atmosphere on shore it was plain that in the path of the spouts a lively tornado was raging. The inverted, cone-shaped clouds would at times drop to the water's edge and then break and dissolve only to reappear and reach down again. To all appearance the clouds were drawn downwards, but as in all cyclones the movement was upward in a spiral form. The warm air from the lake's surface supplied much moisture that condensed it as it rose into colder regions and looked like the clouds above.—The Lorain Times.

FOG SIGNALS.

There is a healthy competition between Canada and the United States in reference to the employment of the most economical motive power for fog whistles. Mr. Trudeau, an Ottawa electrician, and son of the late Deputy Minister of Railways and Canals, has just completed a machine which promises to revolutionize this branch of the public service. It has been adopted by the Dominion Government, and the first of the new machines will be installed in British Columbia forthwith. The new device is operated by a naphtha motor, on the principle of a large electric gong, with a megaphone sound projector. It is claimed that it will cost about half the price of the ordinary steam whistle, it will be cheaper to operate, take up less space, and give superior results. The local experiments are regarded as highly successful.

VISIBLE SUPPLY OF GRAIN

As compiled for THE MARINE RECORD, by George F. Stone, Secretary Chicago Board of Trade.

CITIES WHERE STORED.	WHEAT. Bushels.	CORN. Bushels.	OATS. Bushels.	RYE. Bushels.	BARLEY Bushels.
Buffalo.....	988,000	671,000	109,000	112,000	33,000
Chicago.....	6,092,000	1,751,000	1,161,000	190,000	18,000
Detroit.....	605,000	37,000	38,000	31,000	.....
Duluth.....	3,897,000	116,000	72,000	65,000	133,000
Fort William, Ont..	672,000	.....	.....	.....	.....
Milwaukee.....	75,000	1,000	24,000	1,000	3,000
Port Arthur, Ont....	100,000	.....	.....	.....	.....
Toledo.....	2,114,000	588,000	676,000	11,000	.....
Toronto.....	72,000	.....	7,000	.....	7,000
On Canal.....	664,000	60,000	310,000	.....	.....
On Lakes.....	1,430,000	1,337,000	371,000	27,000	370,000
Grand Total.....	36,117,000	7,617,000	5,661,000	597,000	618,000
Corresponding Date, 1898.....	8,406,000	17,360,000	4,277,000	599,000	438,000
Increase.....	1,349,000	879,000	576,000	69,000	.....
Decrease.....	.....	.....	.....	.....	326,000

While the stock of grain at lake ports only is here given, the total shows the figures for the entire country except the Pacific Slope.

The term "Dead Marine," as a synonym for an empty bottle, has long been known in the two services, but the origin of the phrase is involved in obscurity. The following, however, is said to be the correct explanation: A certain Duke of York frequently entertained his officers and on one occasion called to a servant to take away those dead marines," pointing to a number of empty bottles on the sideboard. An officer of marines being present grew somewhat indignant at what he looked upon in the nature of an intended slight to his branch of His Majesty's service, so asked an explanation of the bluff Duke. The reply was: "They have done their duty and are ready to do it again."

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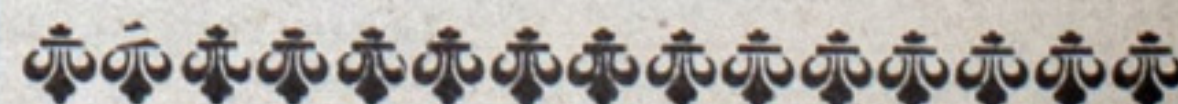
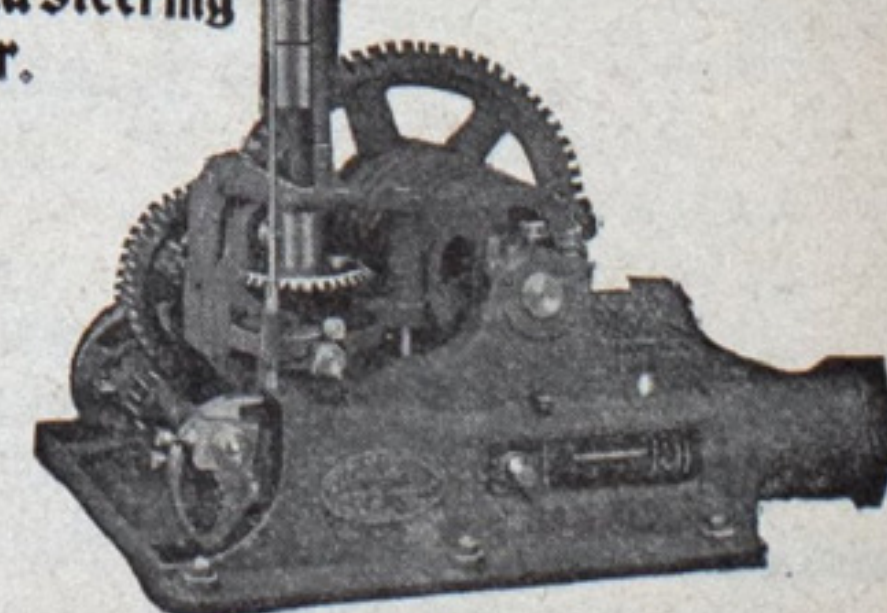
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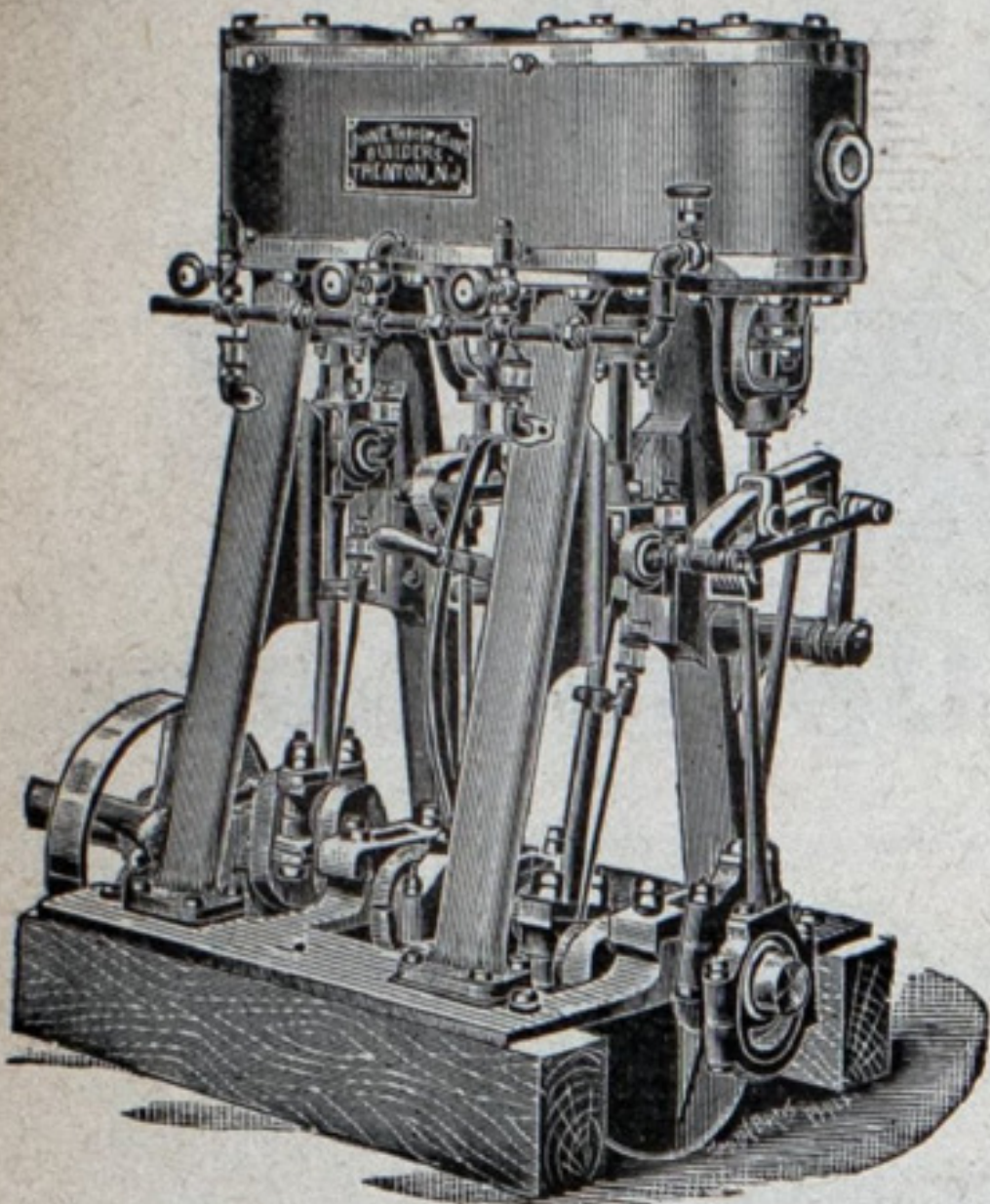
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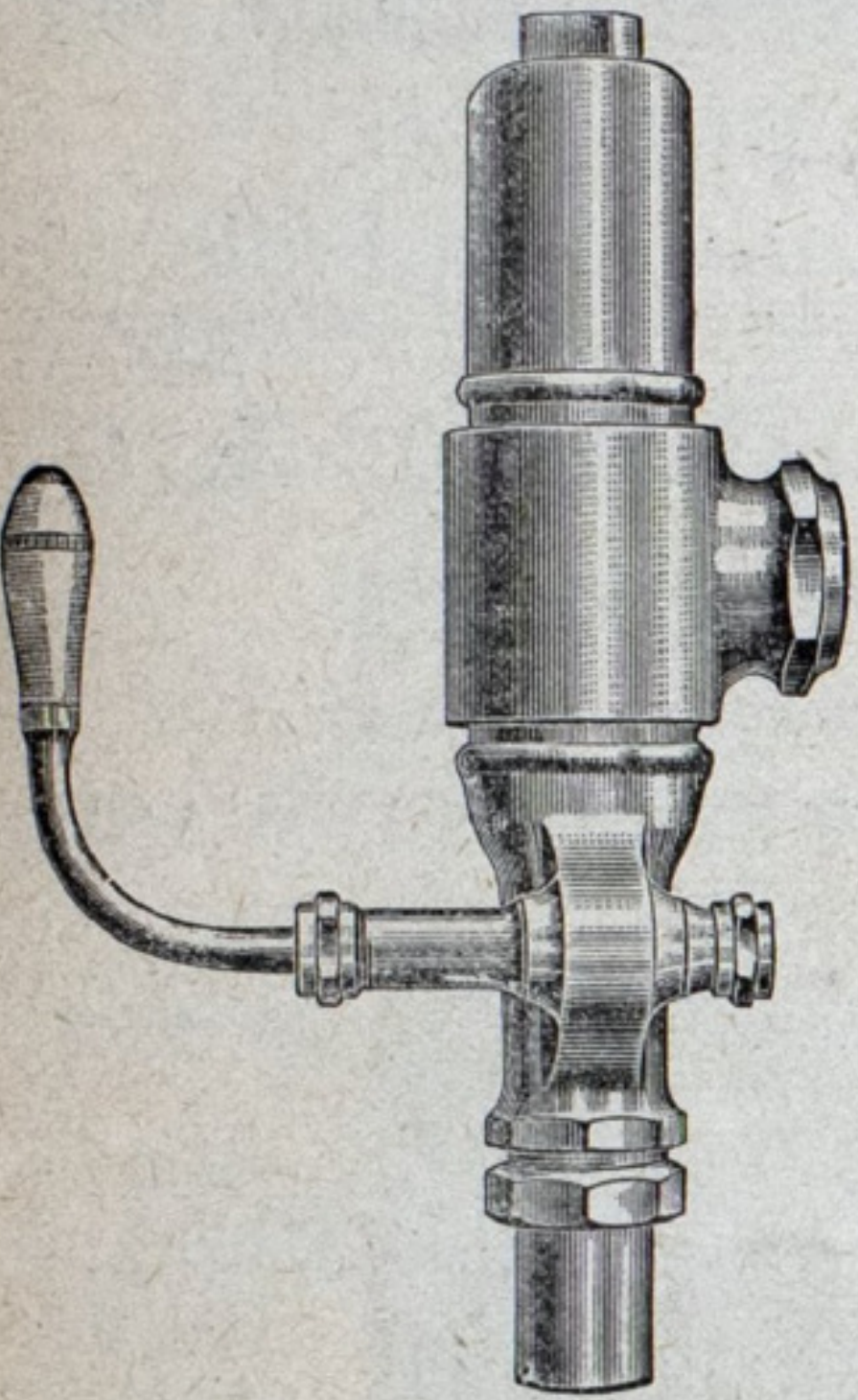


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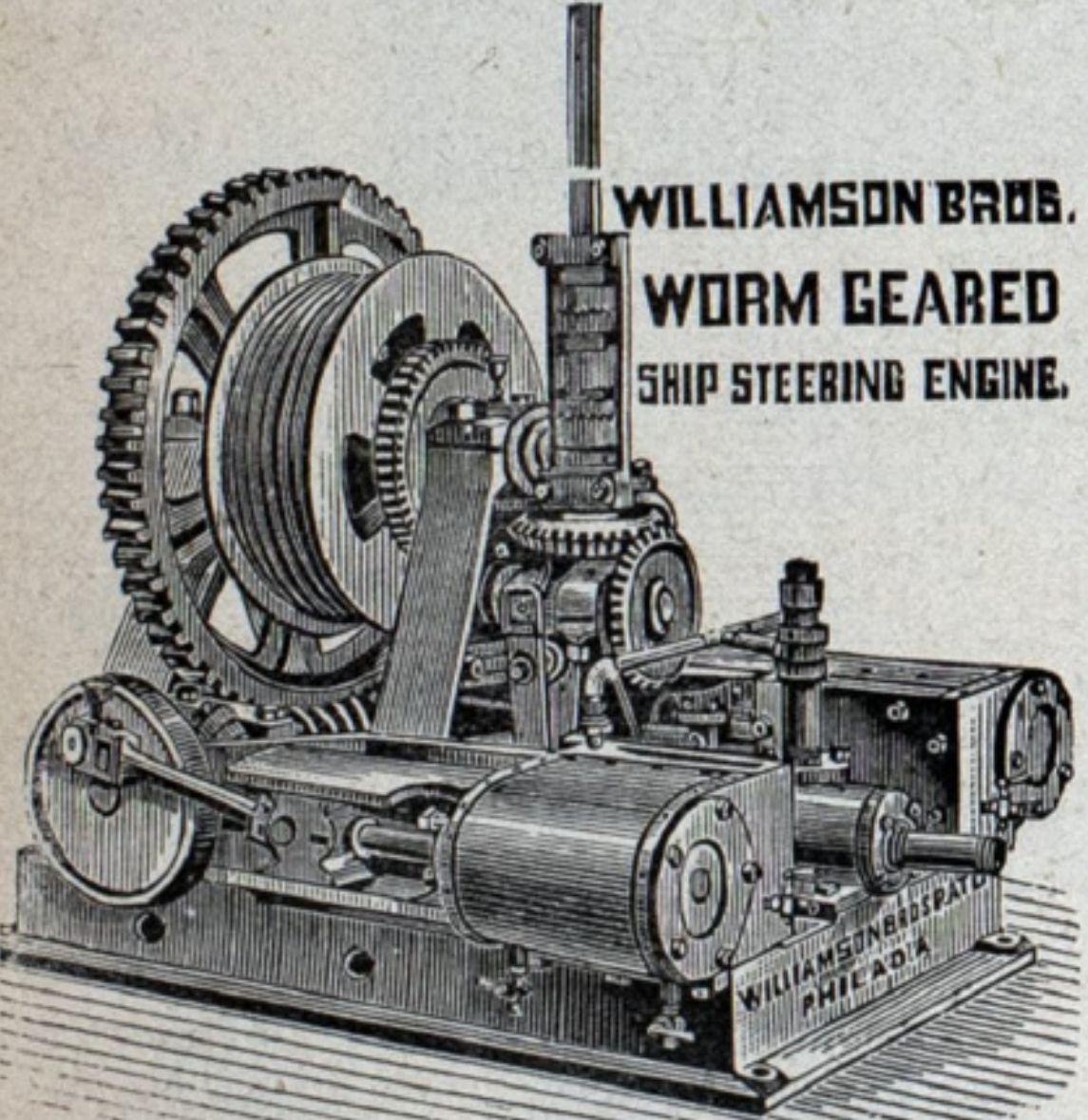
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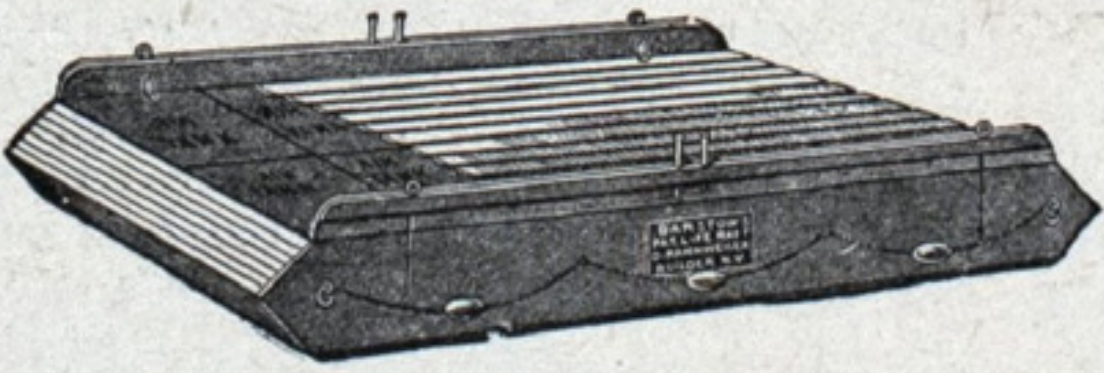
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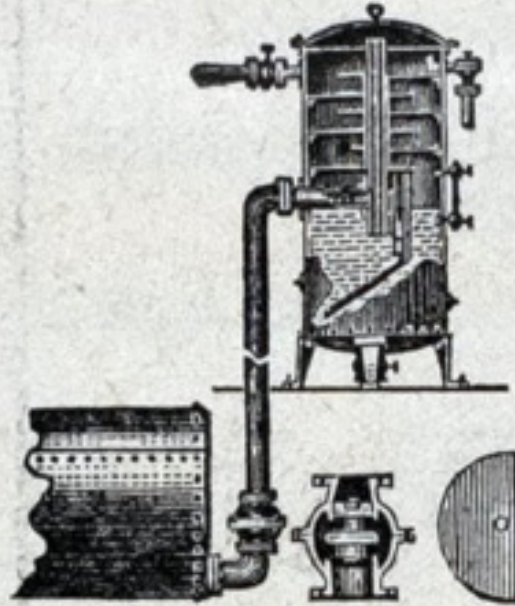
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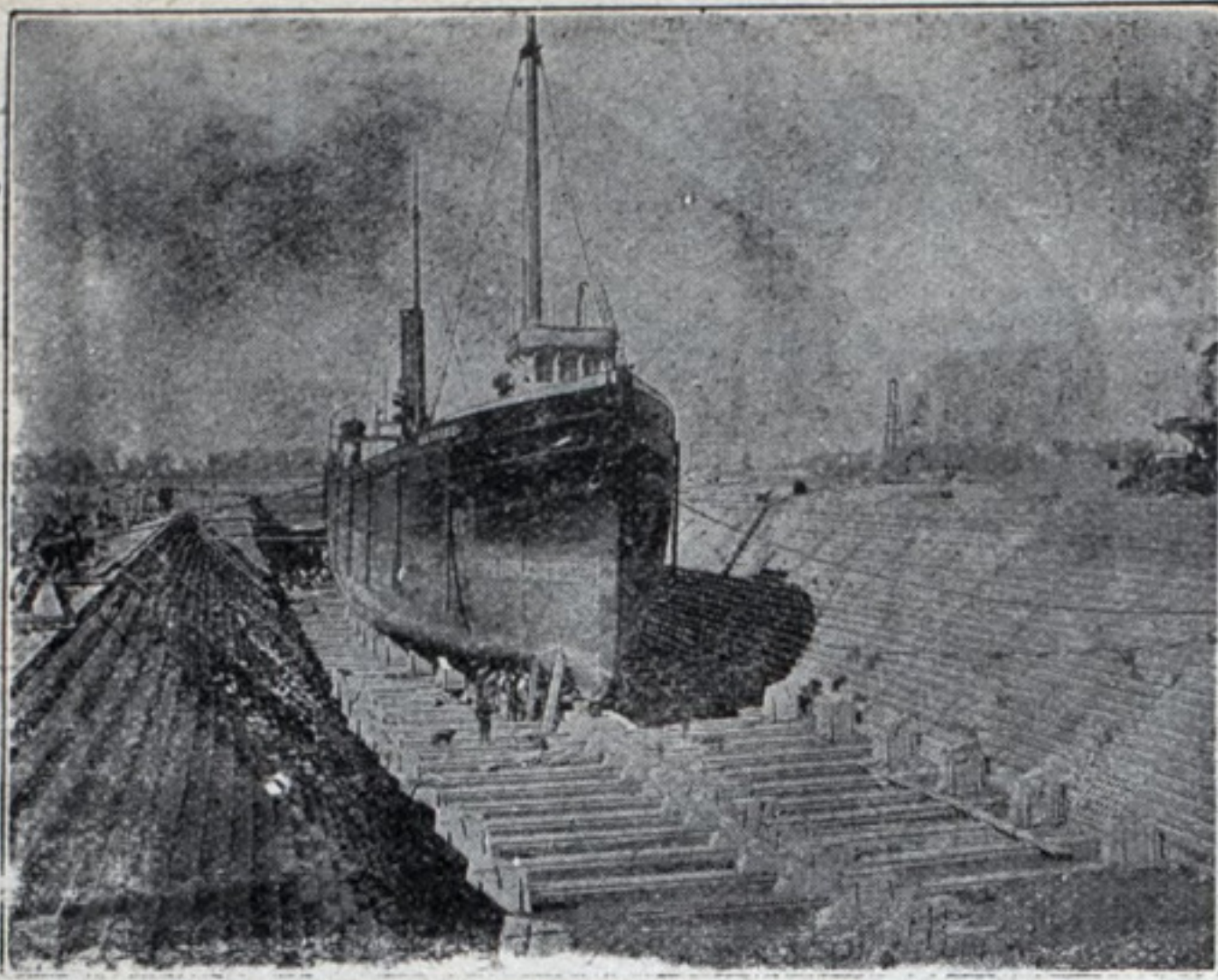
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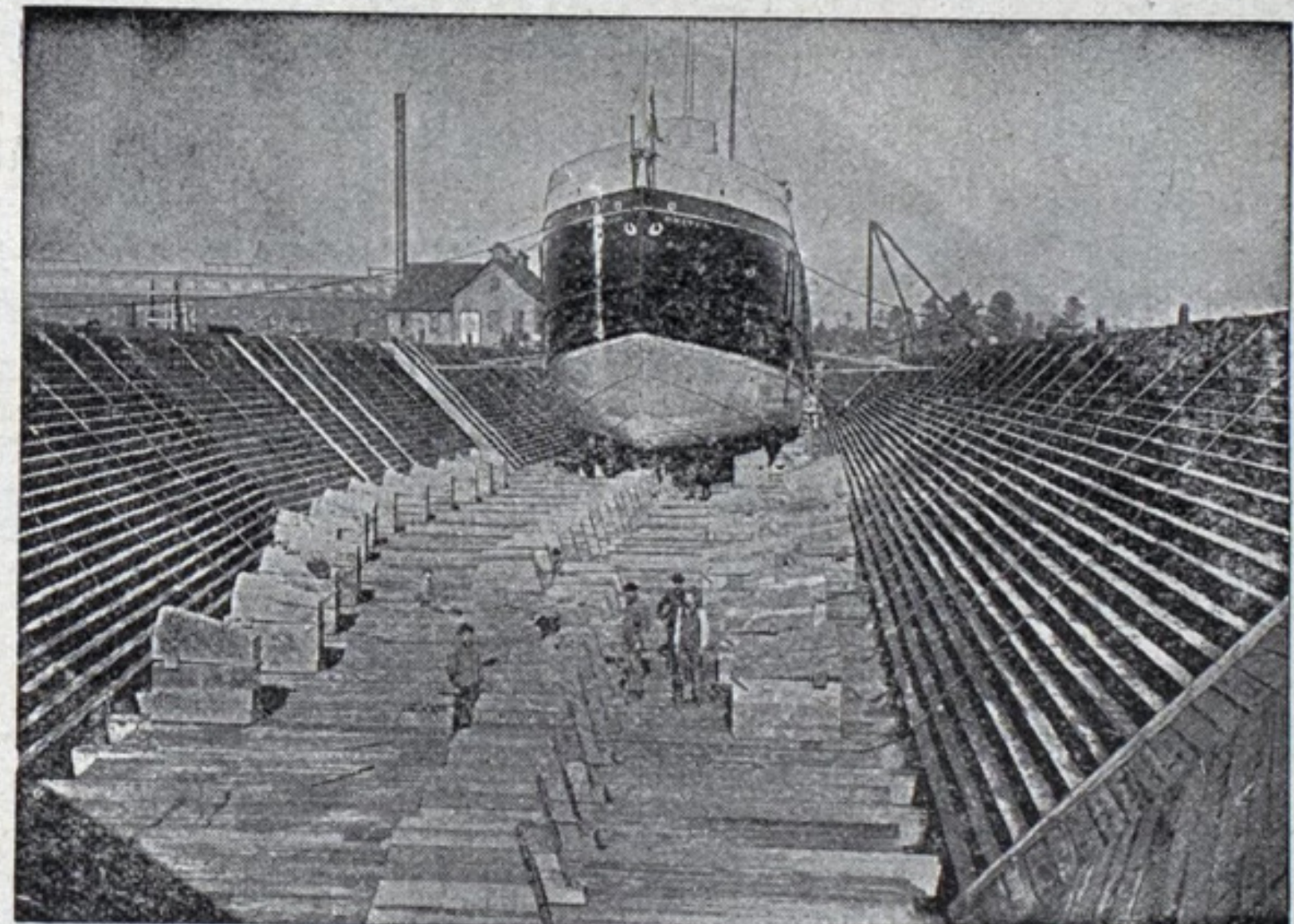
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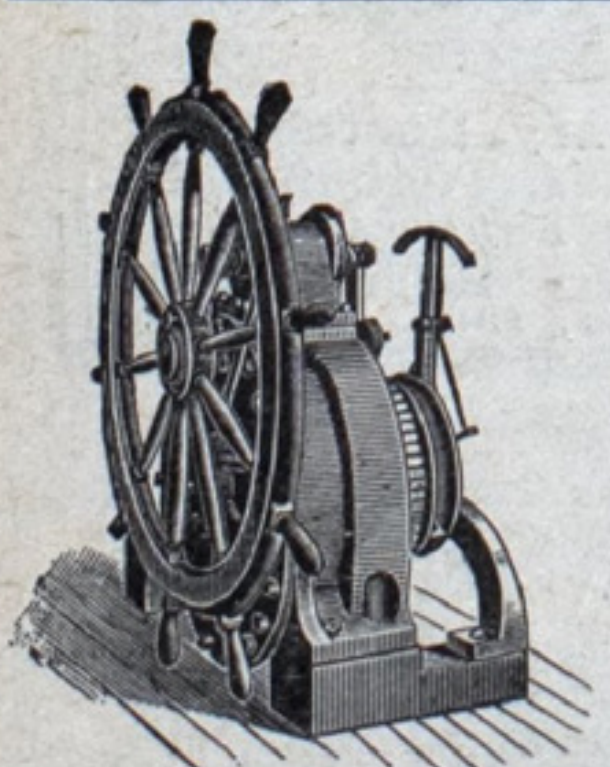
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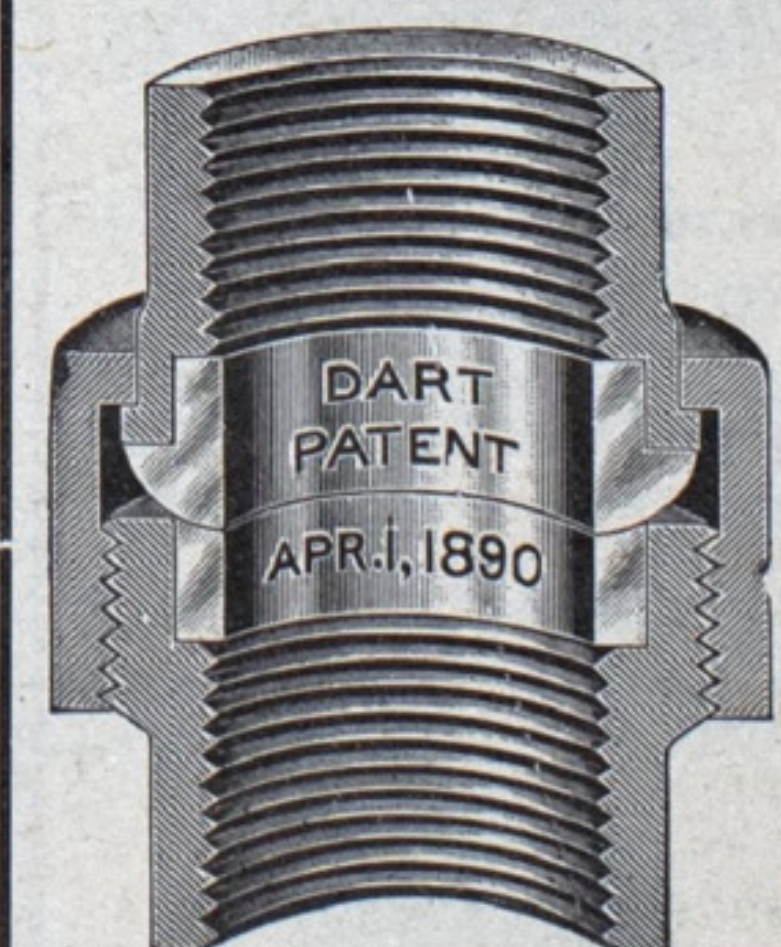
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